

General Notes

1. THE WORK INCLUDED UNDER THIS CONTRACT CONSISTS OF ALL LABOR, MATERIALS, TRANSPORTATION, TOOLS AND EQUIPMENT NECESSARY FOR THE CONSTRUCTION OF THE PROJECT LEAVING ALL WORK READY FOR USE.
2. ALL CONSTRUCTION SHALL CONFORM TO THE FOLLOWING CODES:

A. 2016 CALIFORNIA RESIDENTIAL CODE

B. 2016 CALIFORNIA GREEN BUILDING STANDARDS CODE

C. 2016 CALIFORNIA ELECTRICAL CODE

D. 2016 CALIFORNIA MECHANICAL CODE

E. 2016 CALIFORNIA ENERGY CODE

F. 2016 CALIFORNIA FIRE CODE

G. ALL AMENDMENTS AS ADOPTED IN SANTA BARBARA CITY ORDINANCE 5780.

H. TITLE 30 OF CURRENT SBMC
3. THE PLANS INDICATE THE GENERAL EXTENT OF NEW CONSTRUCTION NECESSARY FOR THE WORK, BUT ARE NOT INTENDED TO BE ALL-INCLUSIVE. ALL DEMOLITION AND ALL NEW WORK NECESSARY TO ALLOW FOR A FINISHED JOB IN ACCORDANCE WITH THE INTENTION OF THE DRAWING IS INCLUDED REGARDLESS OF WHETHER SHOWN ON THE DRAWINGS OR MENTIONED IN THE NOTES. ALL WORK IS NEW, U.O.N.
4. ANY ERRORS, OMISSIONS OR CONFLICTS FOUND IN THE VARIOUS PARTS OF THE CONSTRUCTION DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND THE OWNER FOR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
5. THE GENERAL CONTRACTOR SHALL MAINTAIN A CURRENT AND COMPLETE SET OF THE CONSTRUCTION DOCUMENTS ON THE JOB SITE DURING ALL PHASES OF CONSTRUCTION FOR USE OF ALL THE TRADES AND SHALL PROVIDE ALL THE SUBCONTRACTORS WITH CURRENT CONSTRUCTION DOCUMENTS AS REQUIRED.
6. THE GENERAL CONTRACTOR SHALL VERIFY AND ASSUME RESPONSIBILITY FOR ALL DIMENSIONS AND SITE CONDITIONS. THE GENERAL CONTRACTOR SHALL INSPECT THE EXISTING PREMISES AND TAKE NOTE OF EXISTING CONDITIONS PRIOR TO SUBMITTING PRICES. NO CLAIM SHALL BE ALLOWED FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE REASONABLY BEEN INFERRED FROM SUCH EXAMINATION.
7. WRITTEN DIMENSIONS TAKE PRECEDENCE. DO NOT SCALE DRAWINGS.
8. ALL DIMENSIONS ARE TO FACE OF CONCRETE OR PLYWOOD SHEATHING OR CENTERLINE, UNO. WINDOWS AND DOORS MEASURED FROM FACE OF PLYWOOD, U.N.O.
9. ALL DIMENSIONS ON REFLECTED CEILING OR ELECTRICAL PLANS ARE FROM FACE OF FINISH OR CENTER LINE OF COLUMN TO CENTER LINE OF FIXTURE OR GROUP OF FIXTURES, UNLESS OTHERWISE NOTED.
10. ALL VERTICAL DIMENSIONS ARE TO FACE OF FINISH, OR FINISH FLOOR, UNLESS OTHERWISE NOTED.
11. ALL DIMENSIONS NOTED "VERIFY" AND "V.I.F." ARE TO BE CHECKED BY CONTRACTOR PRIOR TO CONSTRUCTION. IMMEDIATELY REPORT ANY VARIANCES TO THE ARCHITECT FOR RESOLUTION.
12. CONTRACTOR SHALL PROVIDE ALL SEISMIC BRACING AND HOLD-DOWN CLIPS AS REQUIRED BY CODE FOR ALL SUSPENDED CEILING AND SOFFIT FRAMING CONDITIONS.
13. COORDINATE ALL WORK WITH EXISTING CONDITIONS, INCLUDING BUT NOT LIMITED TO: IRRIGATION PIPES, ELECTRICAL CONDUIT, WATER LINES, GAS LINES, DRAINAGE LINES, ETC.
14. PROVIDE ADEQUATE TEMPORARY SUPPORT AS NECESSARY TO ASSURE THE STRUCTURAL VALUE OR INTEGRITY OF THE BUILDING.
15. PROTECT ALL EXISTING BUILDING AND SITE CONDITIONS TO REMAIN INCLUDING WALLS, CABINETS, FINISHES, TREES AND SHRUBS, PAVING, ETC.
16. DETAILS SHOWN ARE TYPICAL. SIMILAR DETAILS APPLY IN SIMILAR CONDITIONS.
17. VERIFY ALL ARCHITECTURAL DETAILS WITH STRUCTURAL, AND DESIGN/BUILD DRAWINGS BEFORE ORDERING OR INSTALLATION OF ANY WORK.
18. WHERE LOCATIONS OF WINDOWS AND DOORS ARE NOT DIMENSIONED, THEY SHALL BE CENTERED IN THE WALL OR PLACED 6" FROM THE ADJACENT WALL AS INDICATED ON THE DRAWINGS.
19. ALL REQUIRED EXITS SHALL BE OPERABLE FROM INSIDE, WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE.
20. ALL CHANGES IN FLOOR MATERIALS OCCUR AT CENTERLINE OF DOOR OR FRAMED OPENING UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
21. INSTALL ALL FIXTURES, EQUIPMENT AND MATERIALS PER MANUFACTURER'S RECOMMENDATIONS.
22. VERIFY CLEARANCES FOR FLUES, VENTS, CHASES, SOFFITS, FIXTURES, ETC. BEFORE ANY CONSTRUCTION, ORDERING OF, OR INSTALLATION OF ANY ITEMS OF WORK.
23. SEALANT, CAULKING AND FLASHING, ETC. LOCATIONS SHOWN ON DRAWINGS ARE NOT INTENDED TO BE INCLUSIVE. FOLLOW MANUFACTURER'S INSTALLATION RECOMMENDATIONS AND STANDARD INDUSTRY AND BUILDING PRACTICES.
24. ALL ROOF DECK PENETRATIONS AND EXTERIOR WALL OPENINGS SHALL BE GUARANTEED BY THE CONTRACTOR TO BE WATER TIGHT FOR A MINIMUM PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION OF ALL WORK UNDER THIS CONTRACT.
25. THE GENERAL CONTRACTOR SHALL REMOVE ALL RUBBISH AND WASTE MATERIALS OF ALL SUBCONTRACTORS AND TRADES ON A REGULAR BASIS, AND SHALL EXERCISE A STRICT CONTROL OVER JOB CLEANING TO PREVENT ANY DIRECT DEBRIS OR DUST FROM AFFECTING, IN ANY WAY, FINISHED AREAS IN OR OUTSIDE JOB SITE.
26. CONTRACTOR SHALL LEAVE PREMISES AND ALL AFFECTED AREAS CLEAN AND ORDERLY, READY FOR OCCUPANCY. THIS INCLUDES CLEANING OF ALL GLASS (INSIDE AND OUTSIDE) AND FRAMES, BOTH NEW AND EXISTING.
27. INSTALL SMOKE AND CARBON MONOXIDE DETECTORS IN ACCORDANCE WITH THE SPECIFICATIONS AND IN CONFORMANCE WITH LOCAL FIRE MARSHAL REQUIREMENTS.
28. ALL EXTERIOR DOORS AND WINDOWS ARE TO BE WEATHER STRIPPED PER INTERNATIONAL ENERGY CODE REQUIREMENTS, UNLESS OTHERWISE NOTED IN DOOR DETAILS.
29. GLASS SUBJECT TO HUMAN IMPACT SHALL BE OF SAFETY GLAZING MATERIAL TO MEET STATE AND FEDERAL REQUIREMENTS.
30. ANY SURVEY MONUMENTS WITHIN THE AREA OF CONSTRUCTION SHALL BE PRESERVED OR RESET BY A REGISTERED CIVIL ENGINEER OR A LICENSED LAND SURVEYOR.
31. PROVIDE SHOP DRAWINGS FOR ALL MILLWORK, METAL WORK AND CUSTOM ITEMS.
32. SUBSTITUTIONS, REVISIONS AND/OR CHANGES MUST HAVE PRIOR WRITTEN APPROVAL BY THE ARCHITECT.

Construction Notes

1. The ground adjacent to the foundation shall be sloped 20:1 (5%) for 10 feet or if not physically possible provide 5% slope to an approved alternate method of diverting water. Swales used for this purpose shall be a minimum of 2% slope when within 10 feet of the building. Minimum slope to exterior paved surfaces shall be 2%.
2. Roof flashings, trims, gutters and downspouts shall match roofing finish.
3. Only Class A roofing material shall be installed.
4. Provide pressure treated wood framing where framing contacts concrete.
5. Pipe and duct insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance and wind.
6. Plumbing systems shall be design-build. See Floor Plan for fixture layout.
7. Provide non-removable backflow prevention device on all exterior hose bibbs and lawn sprinkler/irrigation system.
8. Where plumbing, heating or other pipes are placed in or partially in a partition, necessitating the cutting of soles or plates, a metal tie not less than 16 gauge galvanized and 1-1/2 inches wide shall be fastened to each plate across and to each side of the opening with not less than (6) 16d nails.
9. At all outswinging doors the maximum drop from top of threshold to top of exterior paving shall be 1/2 inch.
10. All guardrails shall have a minimum height of 36 inches above finish floor with intermediate rails spaced such that a sphere of 4 inches in diameter cannot pass through. Handrails shall be mounted such that the completed handrail and supporting structure are capable of withstanding a load of at least 200 pounds applied in any direction at any point on the rail.
11. Code grippable handrail shall be such that the handrail shall not be less than 1-1/4 inches nor more than 2 inches in cross sectional dimension, or the shape shall provide an equivalent gripping surface.
12. All plumbing fixtures, light fixtures, hardware, casework, finishes and accessories to be specified by Owner.

Electrical Notes

- General:

1.All freezers, refrigerators, and fluorescent lamp ballast shall becertified by the California Energy Commission.

2.All electrical outlets in external walls shall have insulating gaskets.

3.Electrical work to be design / build. Subcontractor to obtain electrical permit, provide whole house calc. (where required) and coordinate grounding system (ufer or rod).
- Electrical Outlets:

1.General: (CEC 210.52)

a. Receptacles must be installed at 12'- 0" O. C. Maximum and walls such the outlets are no more than 6 ft, measured horizontally from an electrical Appliance.

b. The wall space afforded by fixed room dividers, such as free-standing bar-type counters or railings, shall be included in the six foot measurement. "Wall space" shall be considered a wall unbroken along the floor line by doorways, fireplaces, and similar openings. A wall space shall be permitted to include two or more walls of a room (around corner) where unbroken at the floor line. Receptacle outlets shall, insofar as practicable, shall be spaced equal distances apart.

c. Receptacle outlets in floors shall be counted as part of the required number of receptacle outlets if located within 18 inches of the wall.

d. Walls longer than 2 ft and halls longer than 10'-0" inches must have a receptacle.
- 2.Outdoors:

For a one-family dwelling and each unit of a two-unit dwelling that is at grade level, at least one receptacle outlet accessible at gradelevel and not more than six feet six inches above grade shall be installed at the front and back of the dwelling and be WP. GFCI

a. Outdoor lighting permanently mounted to a single family dwelling or other buildings in the same lot shall be high efficacy and must be controlled by an on/off switch that does not override to ON, and must be controlled by photocell and motion sensor. Controls that override to ON shall not be allowed unless the override automatically reactivates the motion sensor within 6 hours.
- 3.Laundry (CEC 210.52 D):

Provide a minimum of one 20 amp receptacle to be used as a laundry receptacle.
- 4.Garages:

At least one receptacle outlet, in addition to any provided forlaundry equipment, shall be installed in each garage.
- 5.GFCI Outlets (CEC 210.8):

Required for exterior outlets, and in all garage outlets not dedicated to a single device or appliance.
- 6.Bond all metal, gas, and water pipes to ground. All ground clamps must be accessible and of an approved type. (CEC 250.104)
- 7.Do not install electrical panels larger than 100 square feet in firewalls. Never in closets. Maintain a clearance of 36" in front of the panels. (CEC 110.26).
8. Lighting in garages, laundry rooms and utility rooms shall be high efficacy and occupancy sensor.
9. Outdoor lighting shall be high efficacy or controlled by a motion sensor and photo control.
10. Ducts shall be sealed with mastic at all joints and seams.
11. Clothes dryer exhaust shall be a minimum of 4 inches, terminate outside the building, and shall be equipped with a back-draft damper.

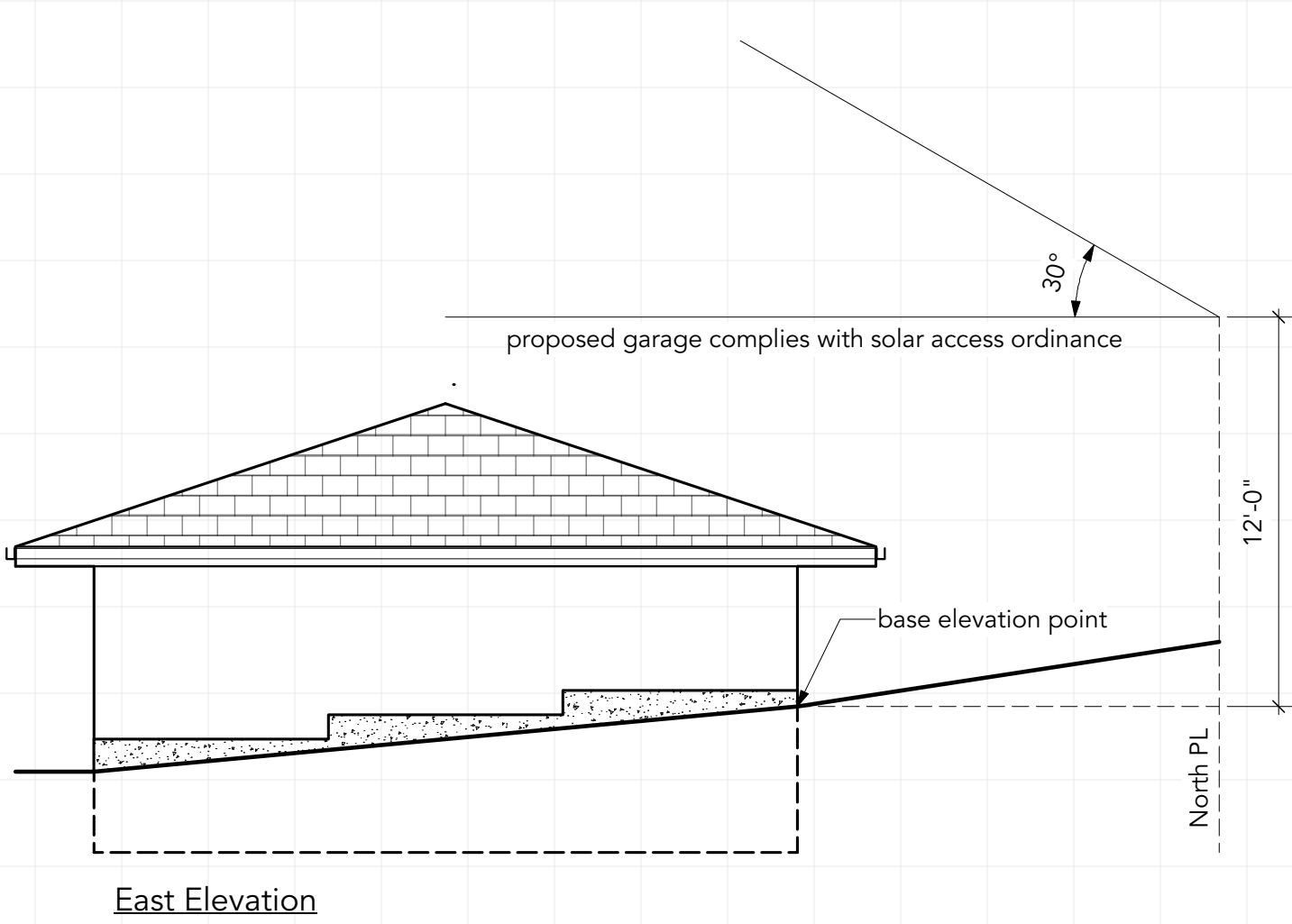
Electrical / Mechanical Symbols

- SURFACE-MOUNTED WALL LIGHT
- FLUORESCENT OR LED PENDANT LIGHT
- WALL SWITCH W/ OCCUPANCY SENSOR
- WALL SWITCH
- DUPLEX OUTLET
- DUPLEX OUTLET - WATERPROOF, GFI PROTECTED
- GROUND FAULT INTERRUPTER DUPLEX OUTLET
- SPECIAL PURPOSE OUTLET - WASHER
- SPECIAL PURPOSE OUTLET - DRYER
- SPECIAL PURPOSE OUTLET - HOT WATER HEATER
- GARAGE DOOR OPENER MOTOR
- GARAGE DOOR OPENER ACTIVATOR
- HOSE BIB
- GAS STUB

Abbreviations

a.f.f.	above finish floor	o.d.	overflow drain
bldg.	building	o.f.c.i.	owner furnish contractor installed
b.o.	bottom of	pl.	plate
CBC	California Building Code	p.t.	pressure treated
C/L	centerline	R	riser
clg	ceiling	RCP	Reflected Ceiling Plan
cmu	concrete masonry units	ref	refrigerator
(d)	demo	rd	roof drain
ds	downspout	r.o.	rough opening
dw	dishwasher	rwl	retaining wall
(e)	existing	S	South
e.f.o.	exterior face of	s.f.	square feet
e.s.	each side	s.c.d.	see civil drawings
ext.	exterior	s.e.d.	see electrical drawings
fd	floor drain	s.i.d.	see interior drawings
f.f.	finish floor	sim.	similar
f.o.c.	face of concrete	s.l.d.	see landscape drawings
f.o.f.	face of finish	s.m.d.	see mechanical drawings
f.o.p.	face of plywood	s.s.	stainless steel
f.o.s.	face of stud	s.s.d.	see structural drawings
fp	fireplace	t&g	tongue & groove
gwb	gypsum wallboard	TBD	To Be Determined
HB	Hose Bibb	T	tread
i.f.o.	interior face of	t.o.	top of
lam	lamineate	t.o.c.	top of concrete
max.	maximum	t.s.	tube steel
min.	minimum	typ.	typical
N	North	u.o.n.	unless otherwise noted
(n)	new	v.i.f.	verify in field
n.i.c.	not in contract	w/	with
n.t.s.	not to scale	w/o	without
o/	over	WRB	weather resistive barrier
o.c.	on center		

Solar Access Compliance Diagram



F.A.R. Calculator

Instructions:

Enter the information in the white boxes below. The spreadsheet will calculate the proposed FAR (floor area ratio), the 100% max FAR (per the Zoning Ordinance), and the 65% max FAR (per the Zoning Ordinance). Additionally it will determine whether a FAR Modification is required.

The Net Lot Area does not include any Public Road Easements or Public Road Right-of-Way areas. The proposed TOTAL Net FAR Floor Area shall include the net floor area of all stories of all building, but may or may not include basement/cellar floor area. For further clarification on these definitions please refer to SBMC §28.15.083.

ENTER Project Address:	820 Alston Rd
Is there a basement or cellar existing or proposed?	no
ENTER Proposed TOTAL Net FAR Floor Area (in sq. ft.):	2,715

ENTER Zone ONLY from drop-down list:	RS-25
ENTER Net Lot Area (in sq. ft.):	24,695
Is the height of existing or proposed buildings 17 feet or greater?	Yes
Are existing or proposed buildings two stories or greater?	No
The FAR Requirements are:	GUIDELINE**

ENTER Average Slope of Lot:	16.00%
Does the height of existing or proposed buildings exceed 25 feet?	No
Is the site in the Hillside Design District?	Yes
Does the project include 500 or more cu. yds. of grading outside the main building footprint?	No
An FAR MOD is not required per SBMC §28.15	

FLOOR AREA RATIO (FAR):	0.110
Lot Size Range:	>= 20,000 sq. ft.
MAX FAR Calculation (in sq. ft.):	4,430 + (0.013 x lot size in sq. ft.)
100% MAX FAR:	0.192
100% MAX FAR (in sq. ft.):	4,751
85% of MAX FAR (in sq. ft.):	4,038
80% of MAX FAR (in sq. ft.):	3,801
The 2715 square foot proposed total is 57% of the MAX FAR.*	

* NOTE: Percentage total is rounded up.

**NOTE: If your project is located on a site with multiple or overlay zones, please contact Planning Staff to confirm whether the FAR limitations are "Required" or "Guideline".

Symbols

- elevation
- section
- detail
- wall/partition type
- door
- window
- gridline

Project Information

Site Address: 820 Alston Rd., Santa Barbara, CA 93108
Parcel Number: 015-173-022
Zone District: RS-25
Lot Size: 0.57 acres (24,695 sq. ft.)
Lot Slope: 16%
Flood Plain: No
High Fire Zone: Yes
Construction Type: V
Occupancy Group: R-3
Hillside Design District: Yes
SWMP: Tier 3
Earthwork Estimate in cu. yds.:
Within 5' of bldg footprint
Outside footprint

Cut:	68	35
Fill:	0	0

Total:	68	35
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Project Scope:
New detached 2 car garage and new driveway off Summit Rd.
Demo of portion of existing driveway off Alston Rd.

Building Floor Areas:
Existing Primary Residence (no work proposed): 1922 sq. ft. net 1988 sq. ft. gross
Existing 1 car Garage (no work proposed): 295 sq. ft. net 319 sq ft gross
New detached 2 car garage: 498 sq. ft. net 527 sq. ft. gross

Total floor area:	2715 sq ft. net 2834 sq. ft. gross
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Project Team

Owner/Architect:

Alexa Newman
820 Alston Rd.
Santa Barbara, CA 93108
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email: alexaschloh@gmail.com

Contractor:

Dan Upton Construction, Inc.
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Santa Barbara, CA 93105
tel: 805-632-8948
email: dan@danuptonconstruction.com

Civil and Structural Engineer:

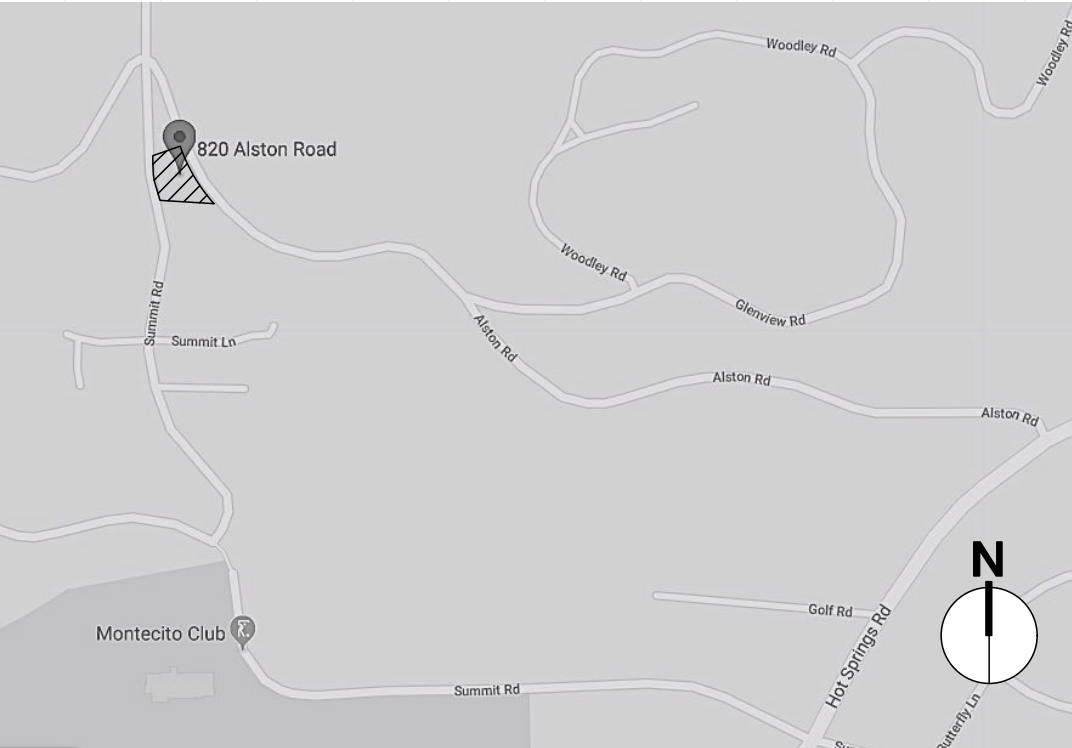
Mike Gones
1219 Laguna St.
Santa Barbara, CA 93101
email: mikegonese@cox.net

Soils Engineer:

Pacific Materials Laboratory
35 S. La Patera Ln.
Goleta, CA 93117
tel: 805-964-6901
email: pml@pml.sbcocmail.com

Vicinity Map

n.t.s.



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Issue	Date
SFDB	02.20.20
SFDB Final	5.13.20

sheet no:

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sheet title:

Project Information

scale: as noted

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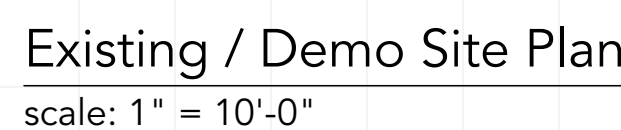
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Santa Barbara, CA 93108

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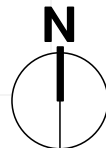
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Proposed Site Plan
scale: 1" = 10'-0"



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SFDB	02.20.20

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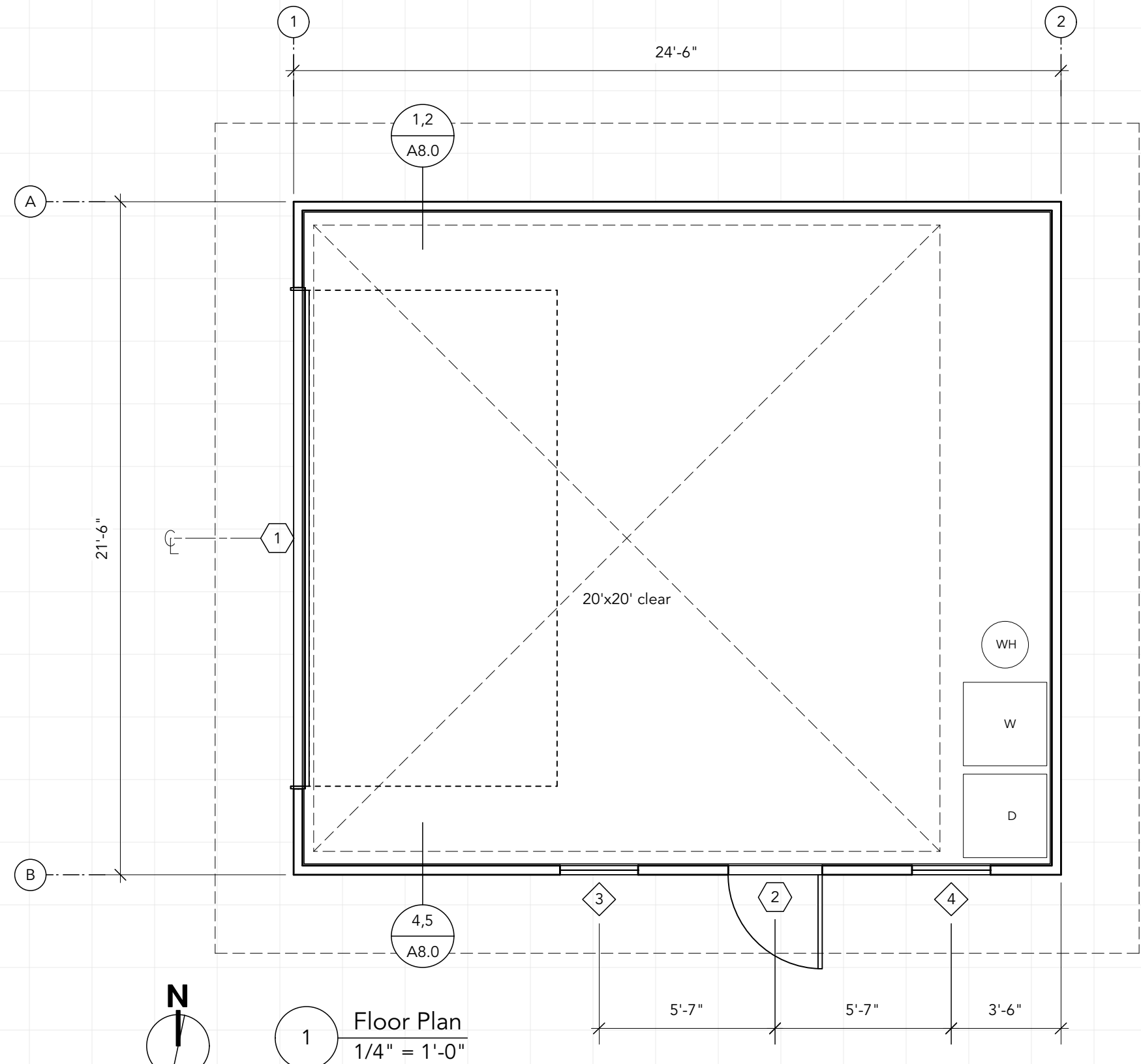
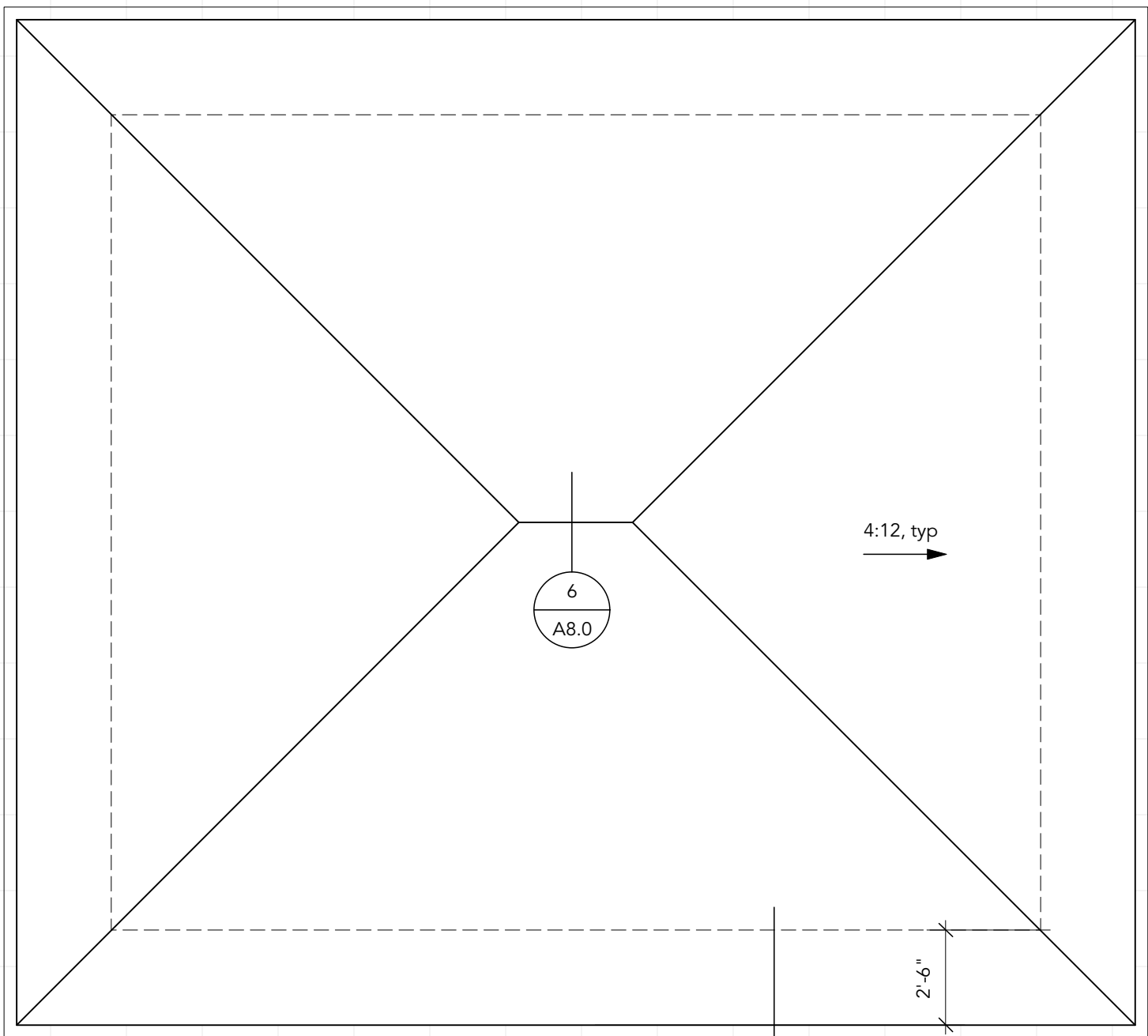
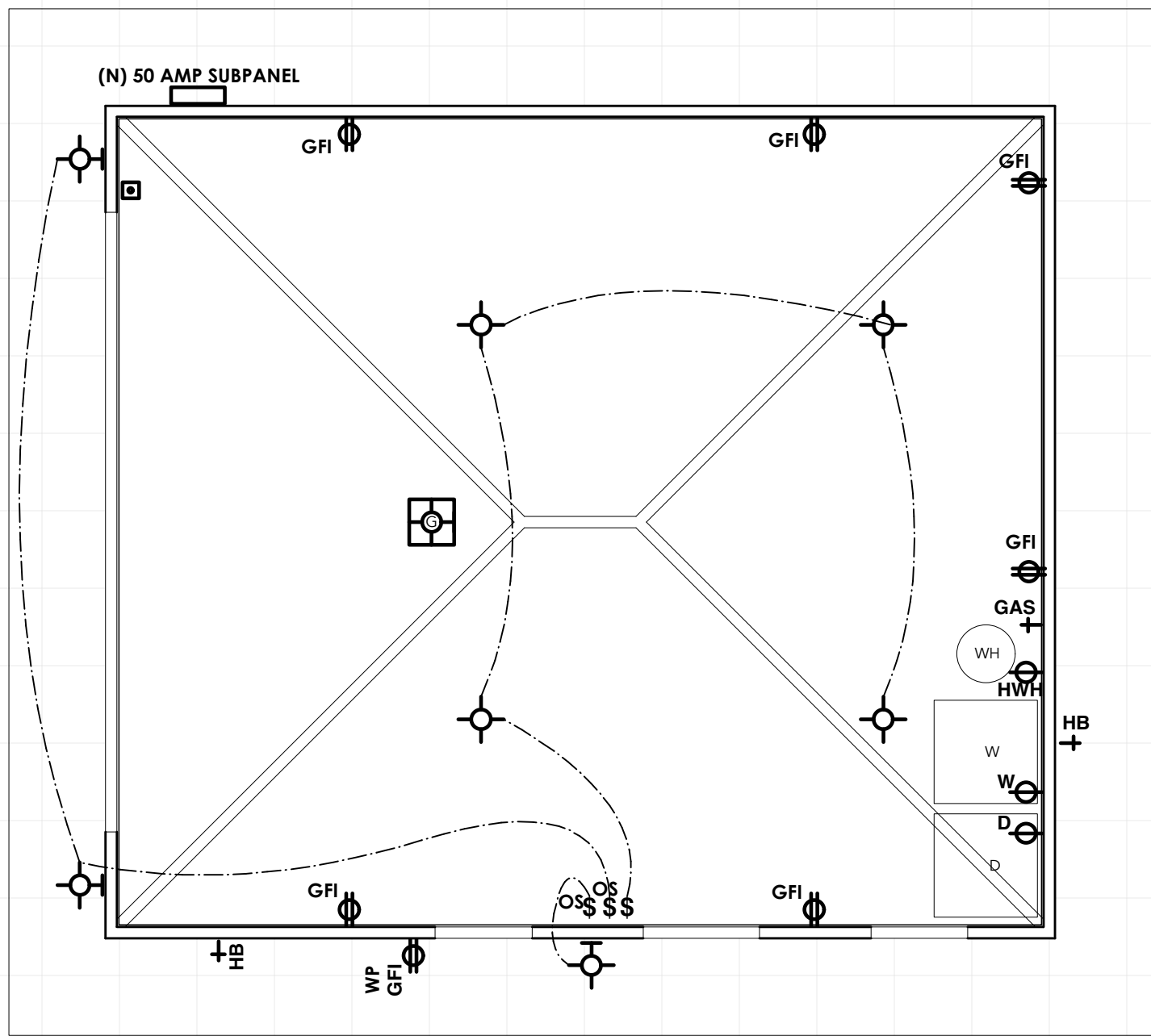
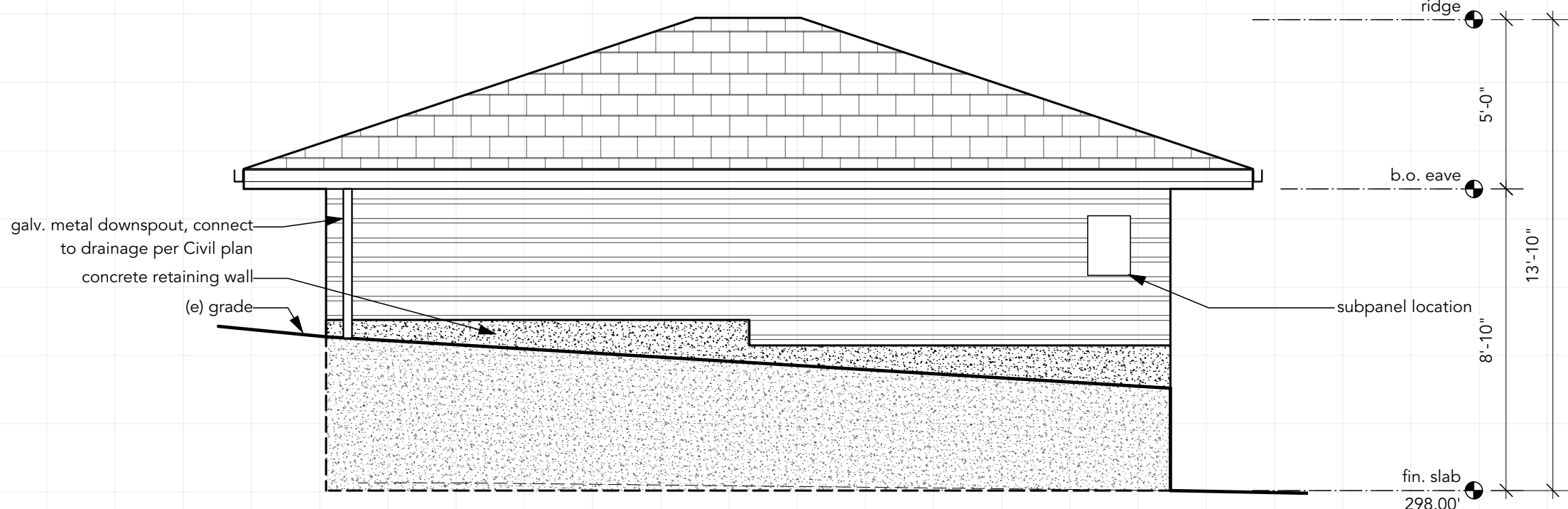
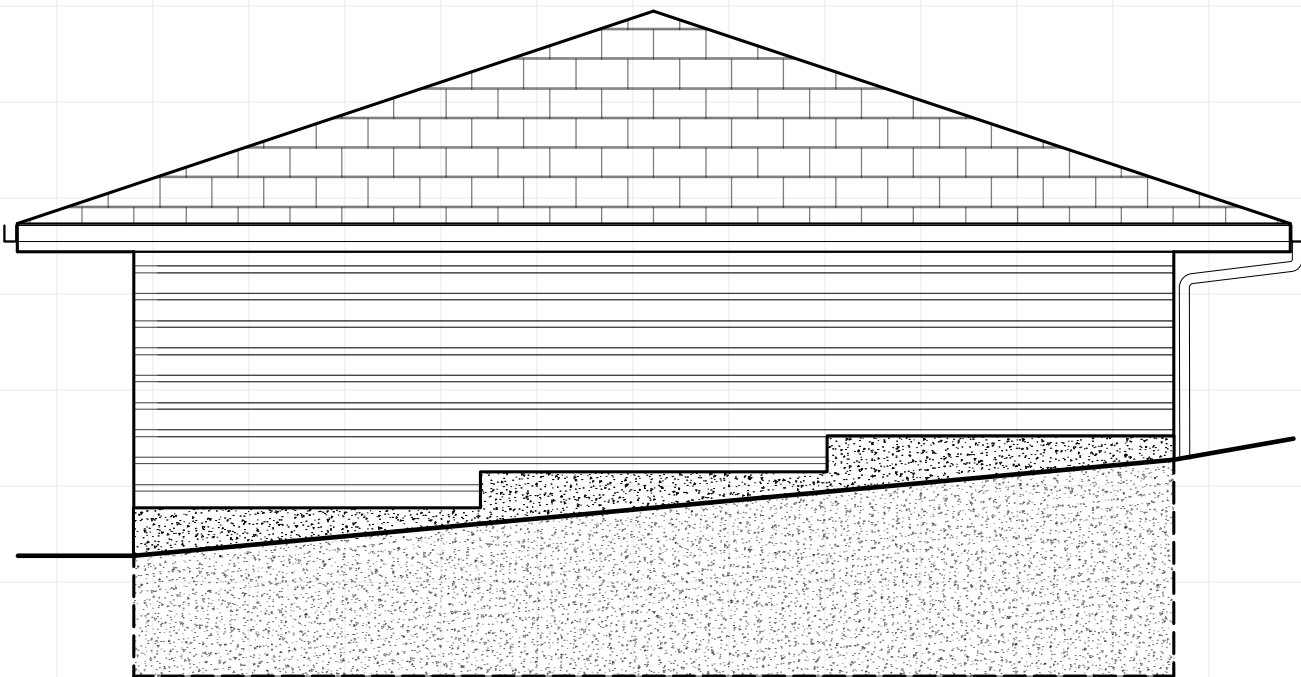
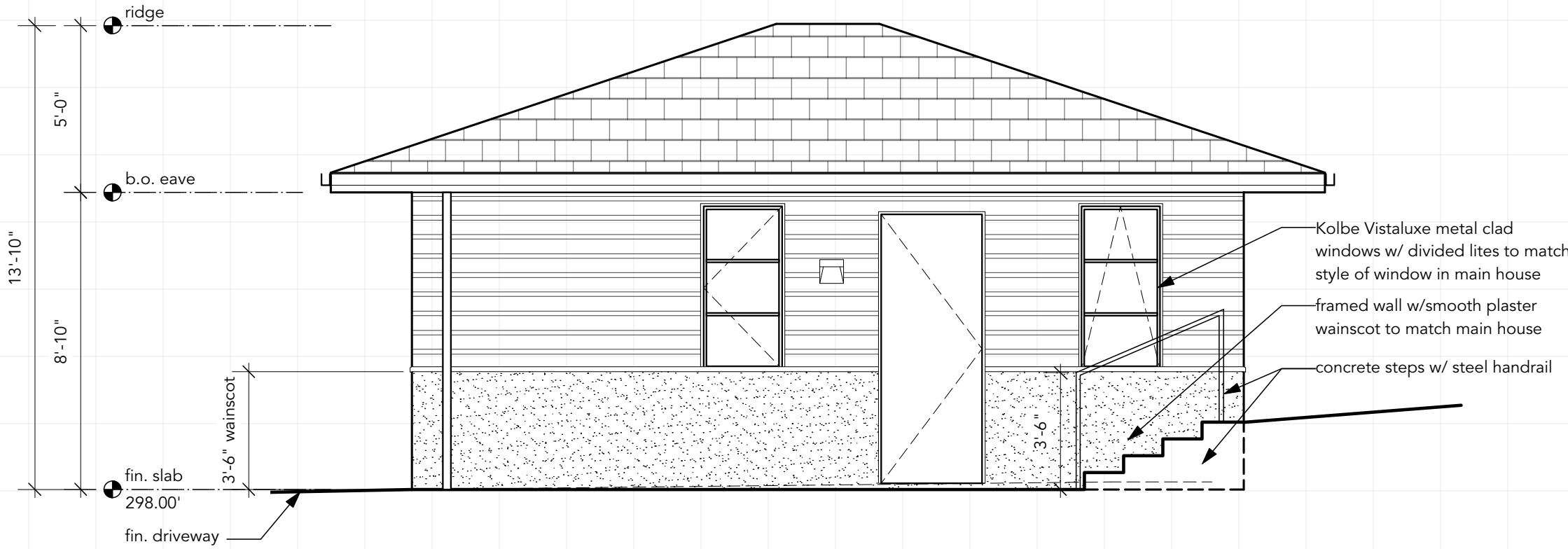
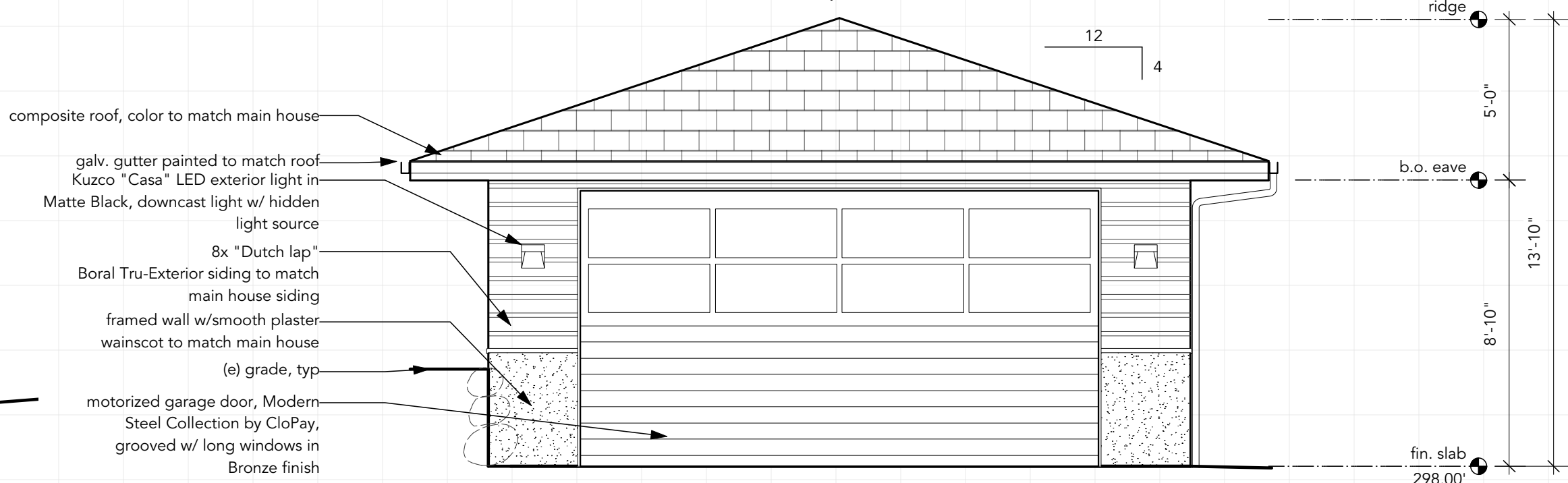
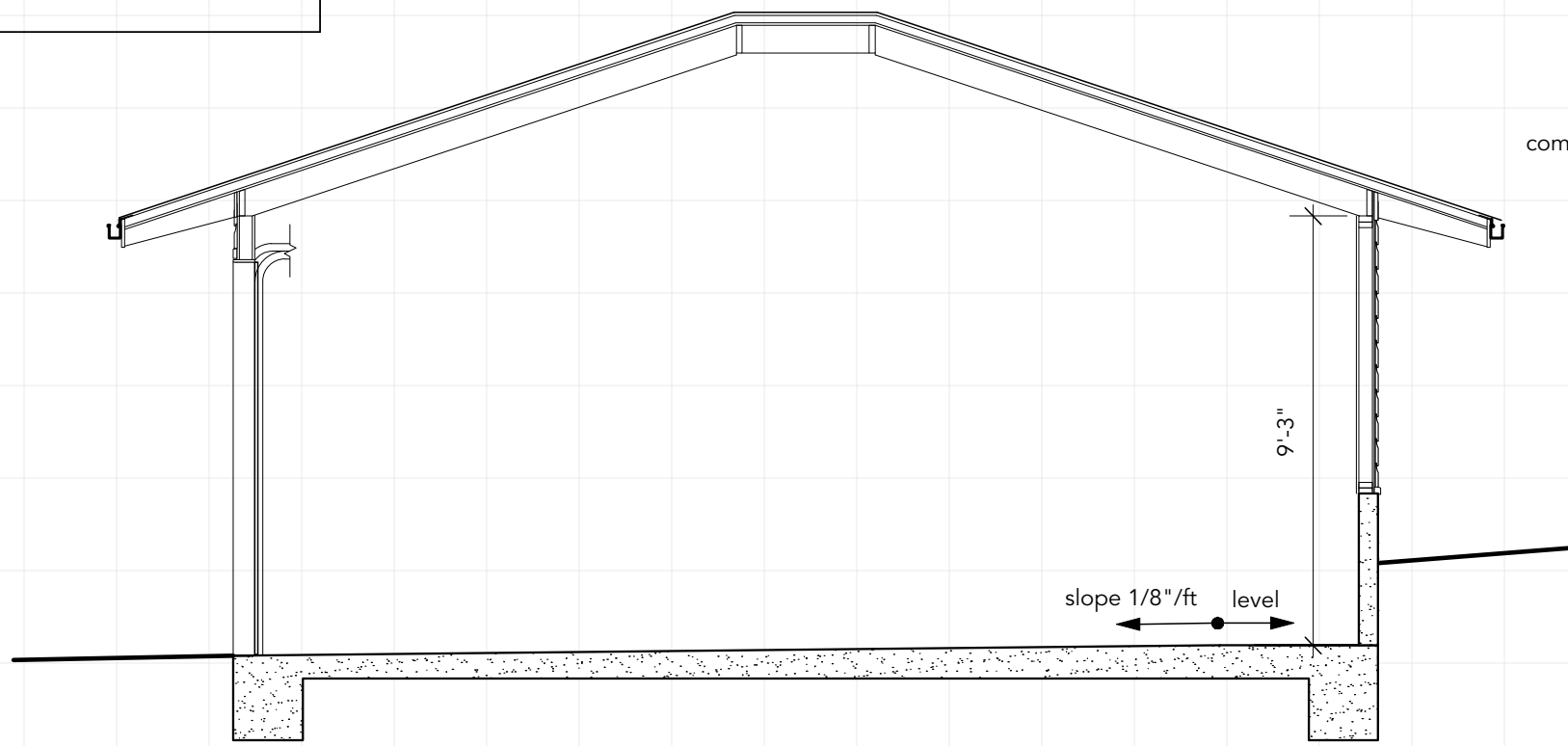
Proposed Site Plan

scale: 1" = 10'-0"

Schedule								
#	WIDTH	HEIGHT	HEAD HT	OPERATION	MATERIAL	MFR	DETAIL	NOTES
Door 1	16'0"	8'6"	8'6"	overhead	metal clad	tbd		motorized garage door
Door 2	3'0"	8'0"	8'0"	swing	solid core wood	tbd		
Window 3	2'6"	4'6"	8'0"	casement	metal clad wood	Kolbe or eq		Vistaluxe w/ divided lites to match main house windows
Window 4	2'6"	4'6"	8'0"	awning	metal clad wood	Kolbe or eq		Vistaluxe w/ divided lites to match main house windows

Window / Door Notes:

- All window glazing shall be insulated panes w/ one tempered pane (2 tempered panes at hazardous locations) and low-e coating. Provide tempered glazing at all doors.
- Head height given as distance above finish floor.
- Hardware finish to match window cladding color and finish.
- There shall be a landing or floor on each side of each exterior door. Landing width shall be 36" minimum measured in the direction of travel and the width shall not be less than the door served. Exterior landings shall have a 2% slope away from the building.
- Doors other than the required egress door shall be provided with landings or floors not more than 7 3/4" below the top of threshold. A landing is not required where a stairway of two or fewer risers is located on the exterior side of the door, provided the door does not swing over the stairway.
- Door W (width) and H (height) given as finished opening dimension, u.o.n.



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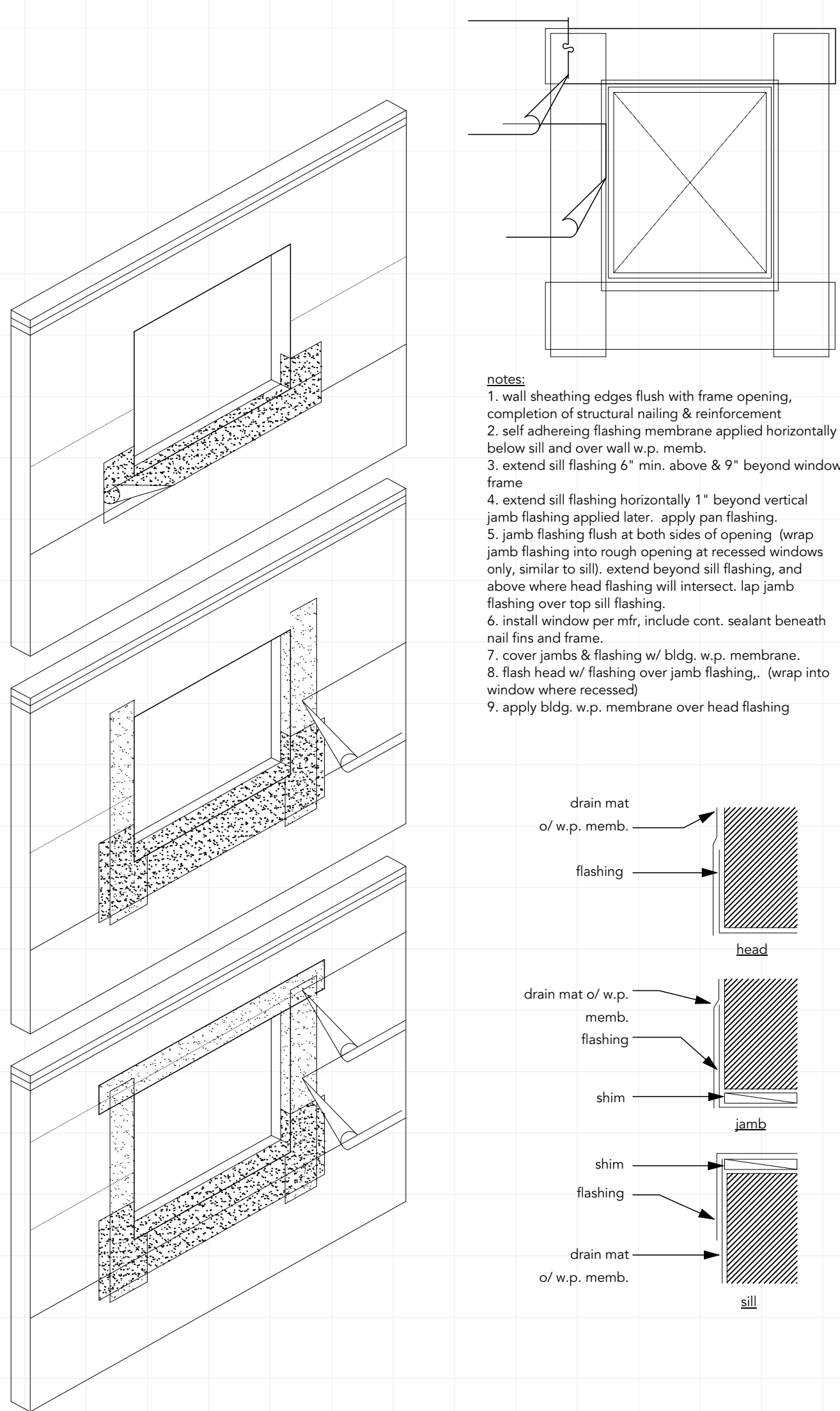
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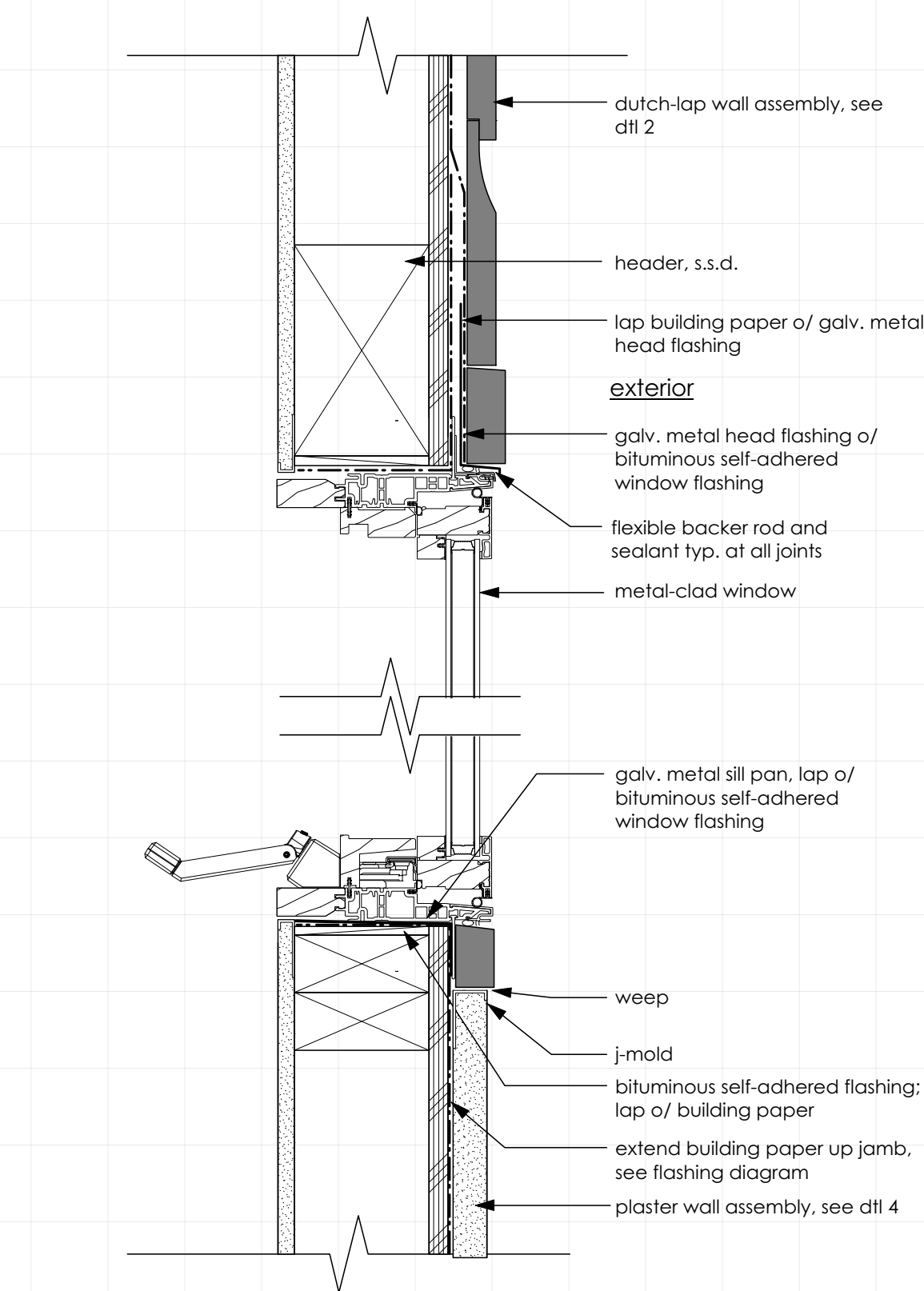
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Proposed
Detached Garage

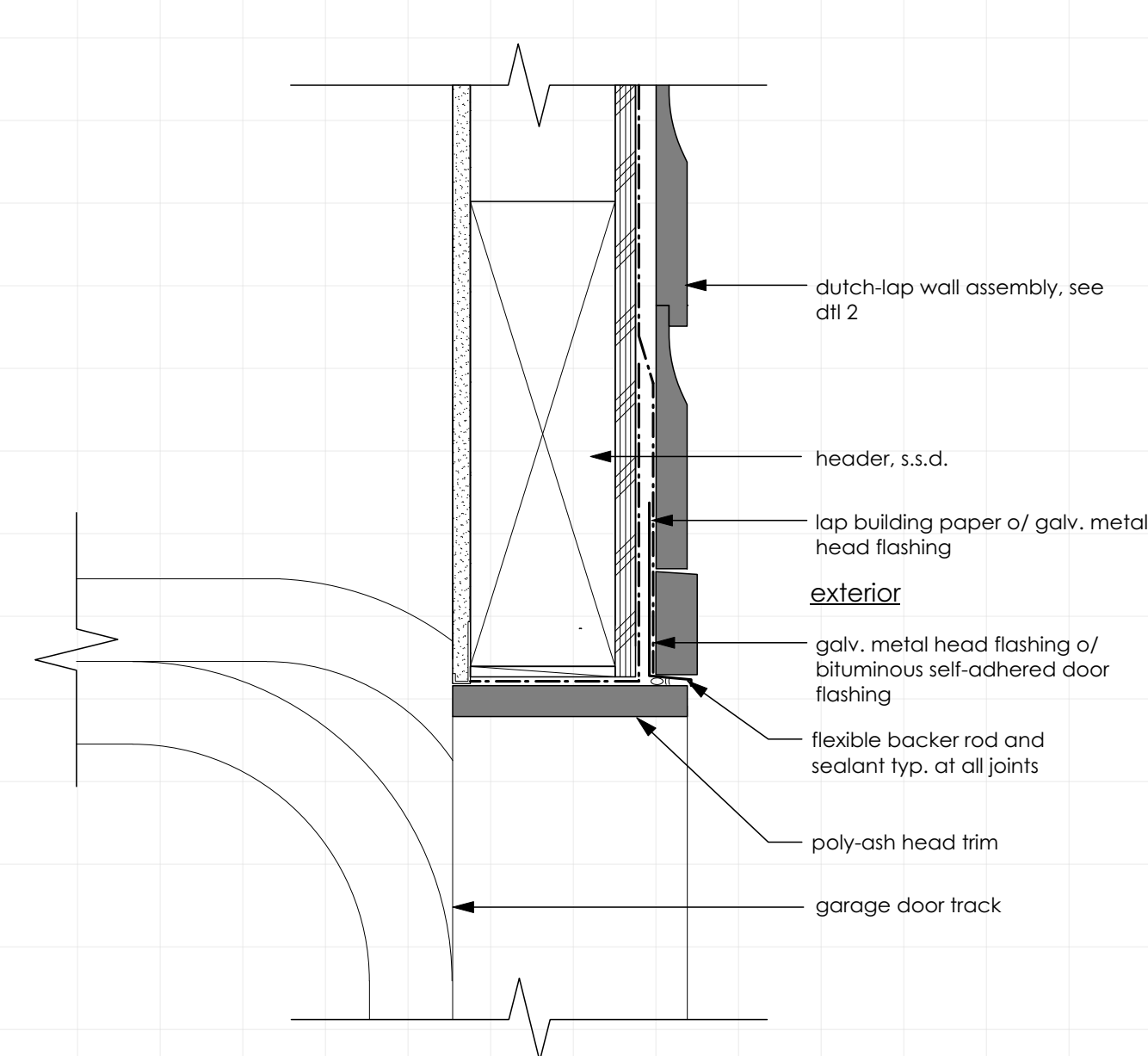
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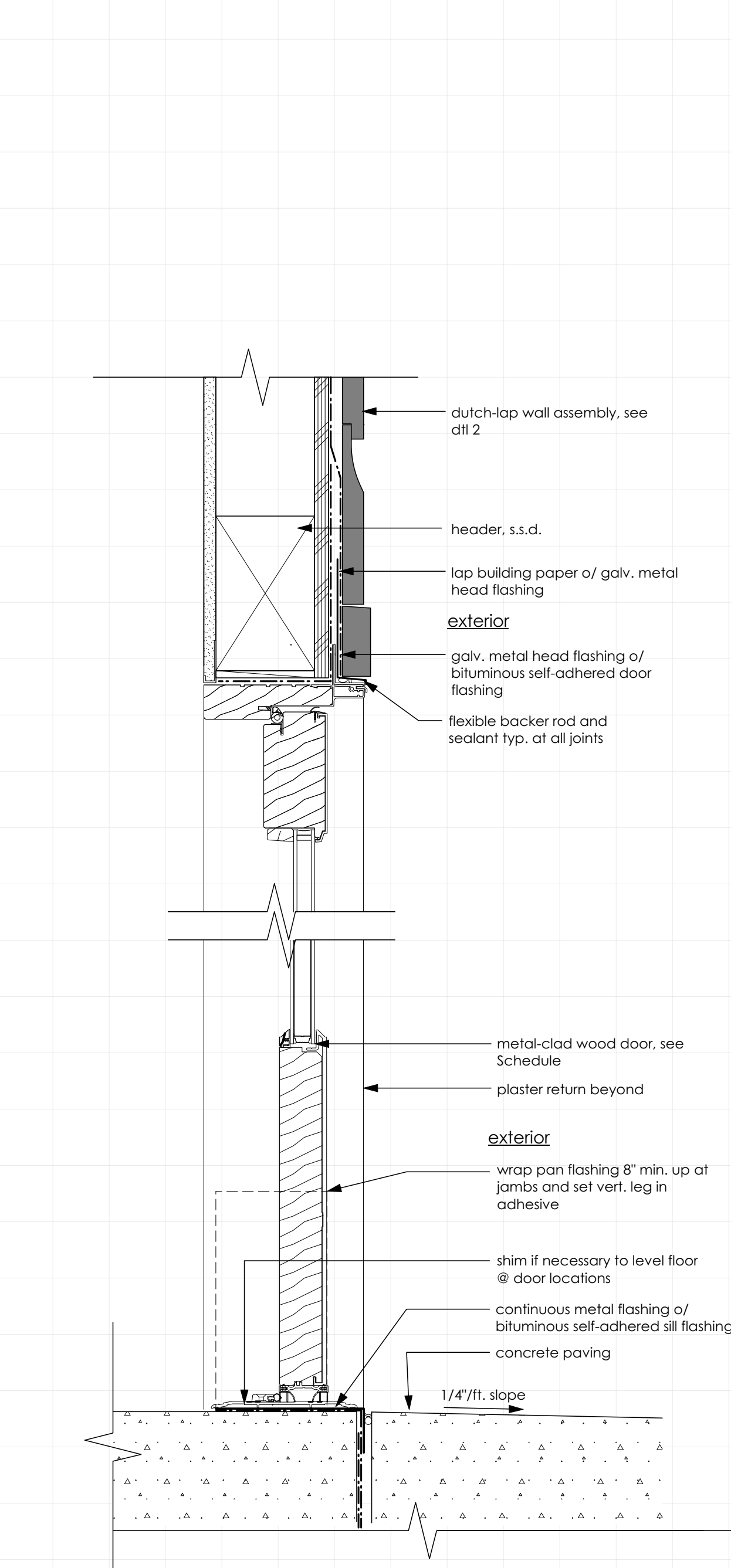
10 Typical Flashing Diagram
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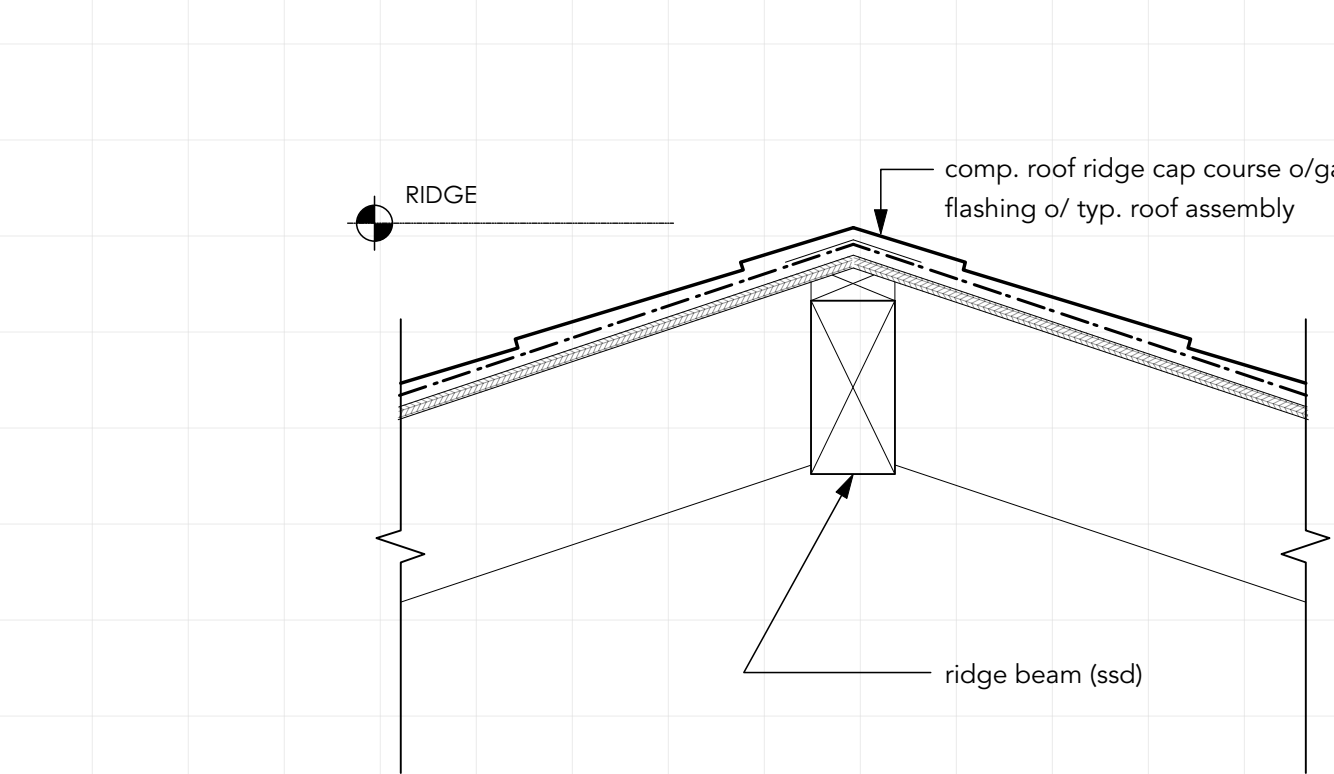
9 Window Head + Sill
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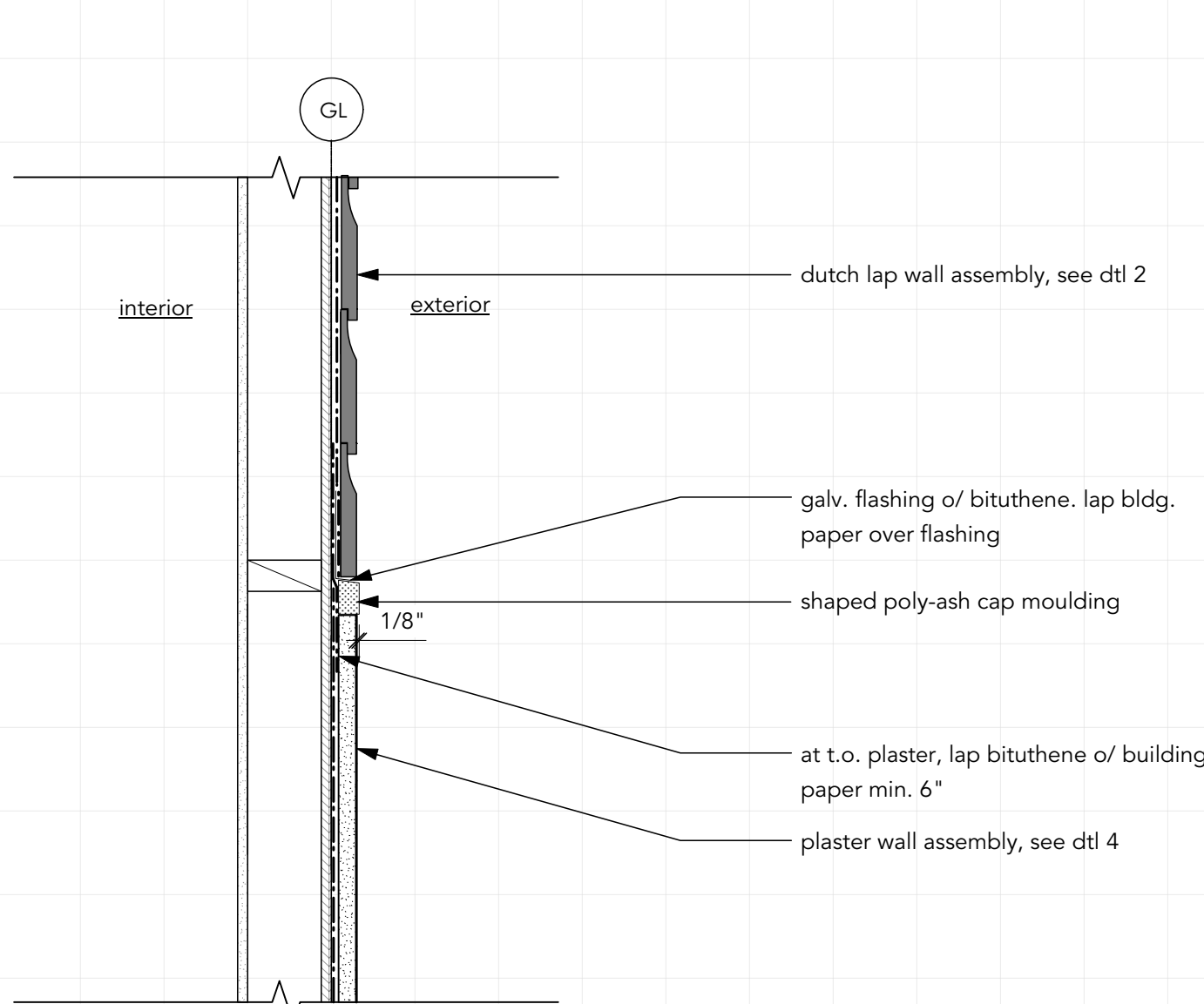
8 Garage Door Head
scale: 3" = 1'-0"



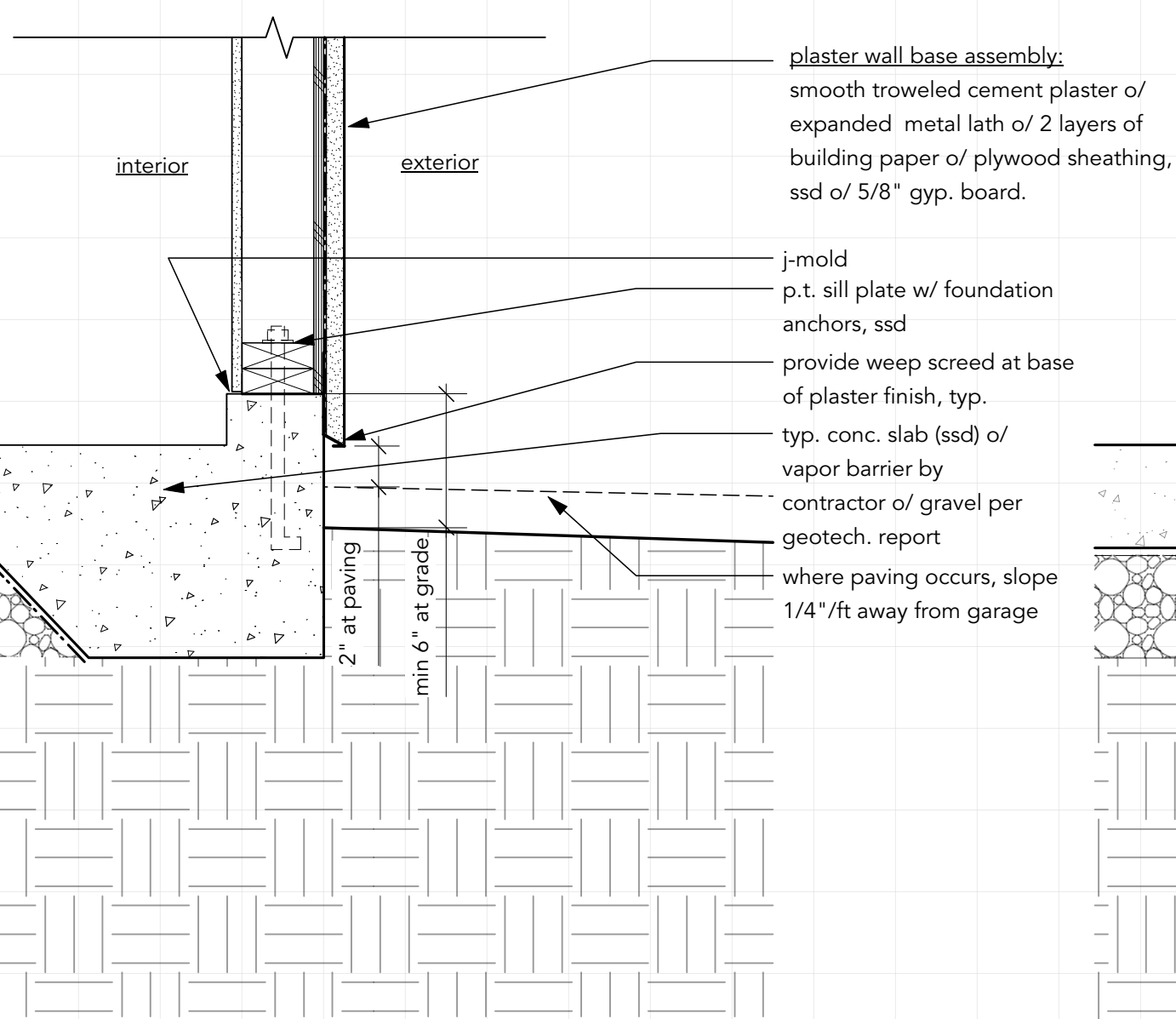
7 Outswing Door Head + Threshold
scale: 3" = 1'-0"



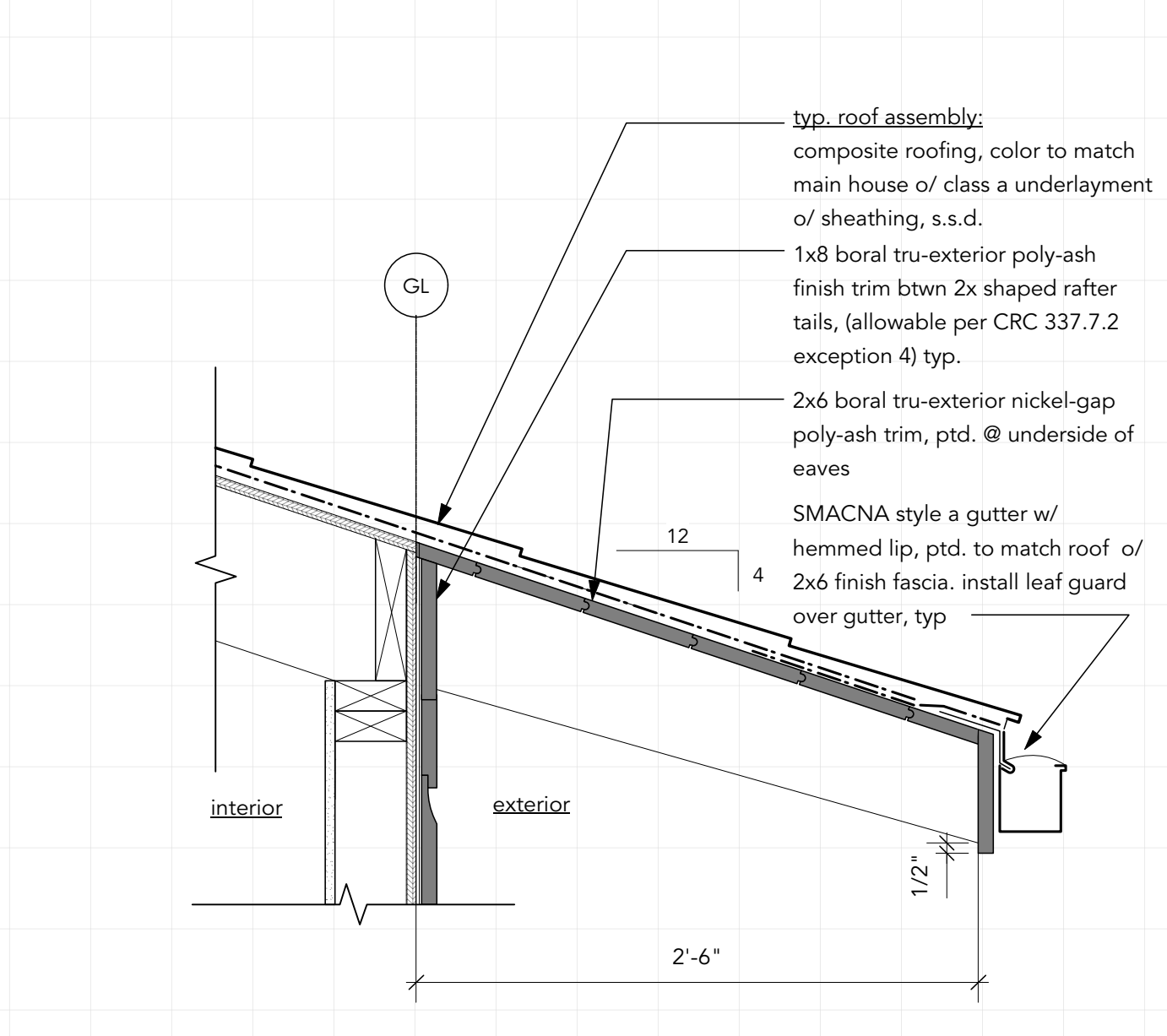
6 Typical Roof Ridge/Hip
scale: 1 1/2" = 1'-0"



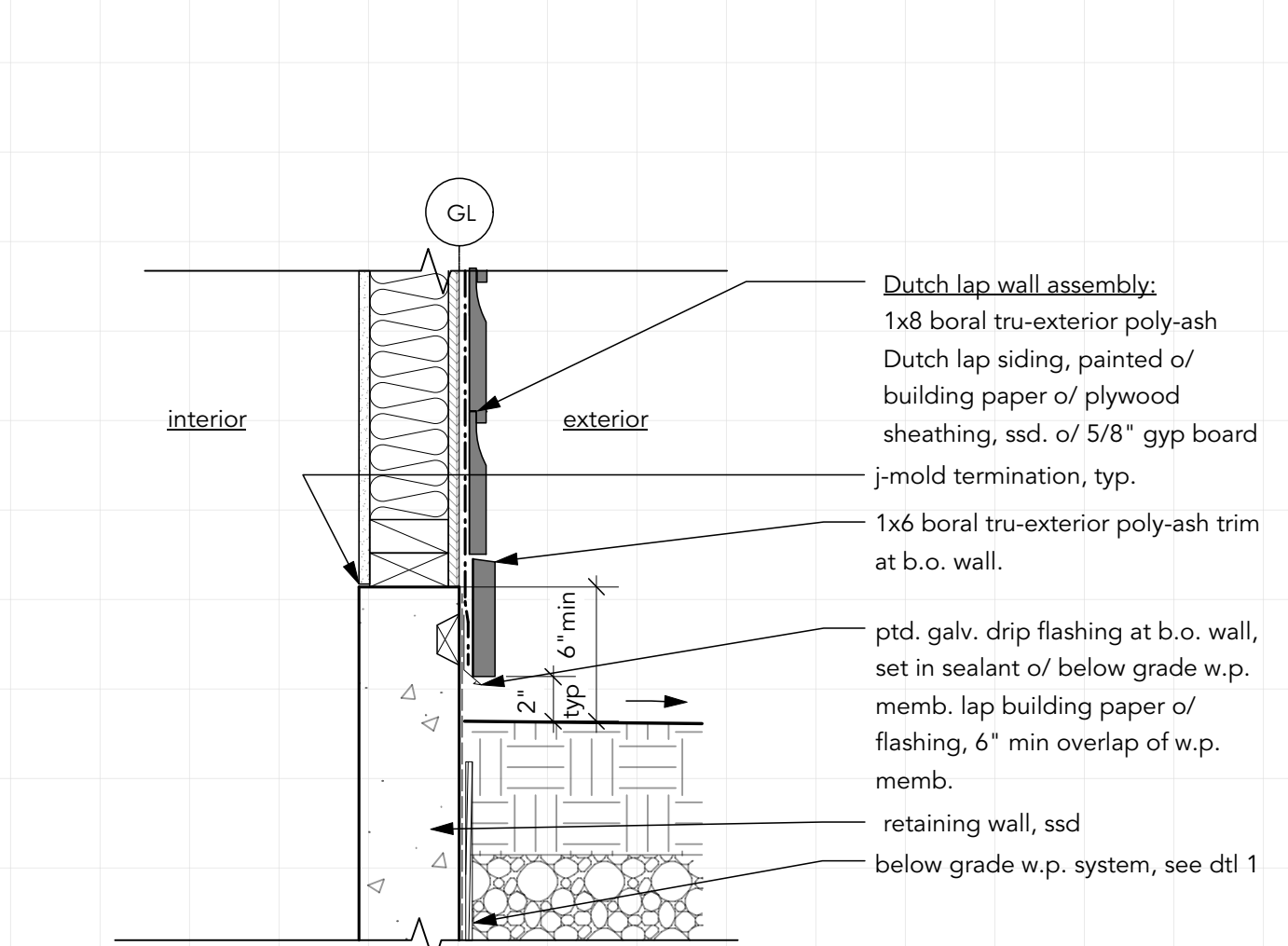
5 Plaster to Dutch Lap Wall Transition
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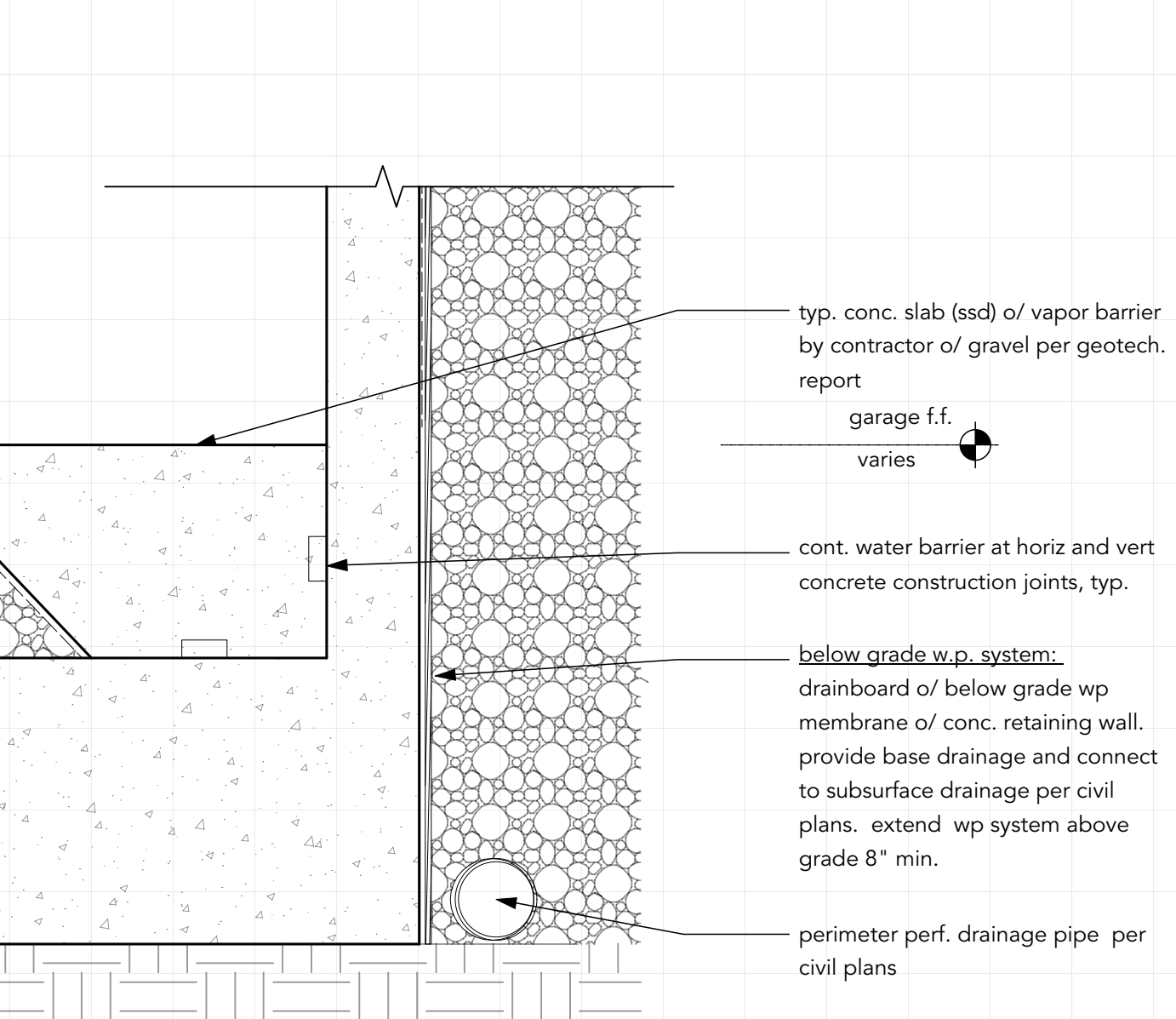
4 Cement Plaster Wall Base @ Grade
scale: 1 1/2" = 1'-0"



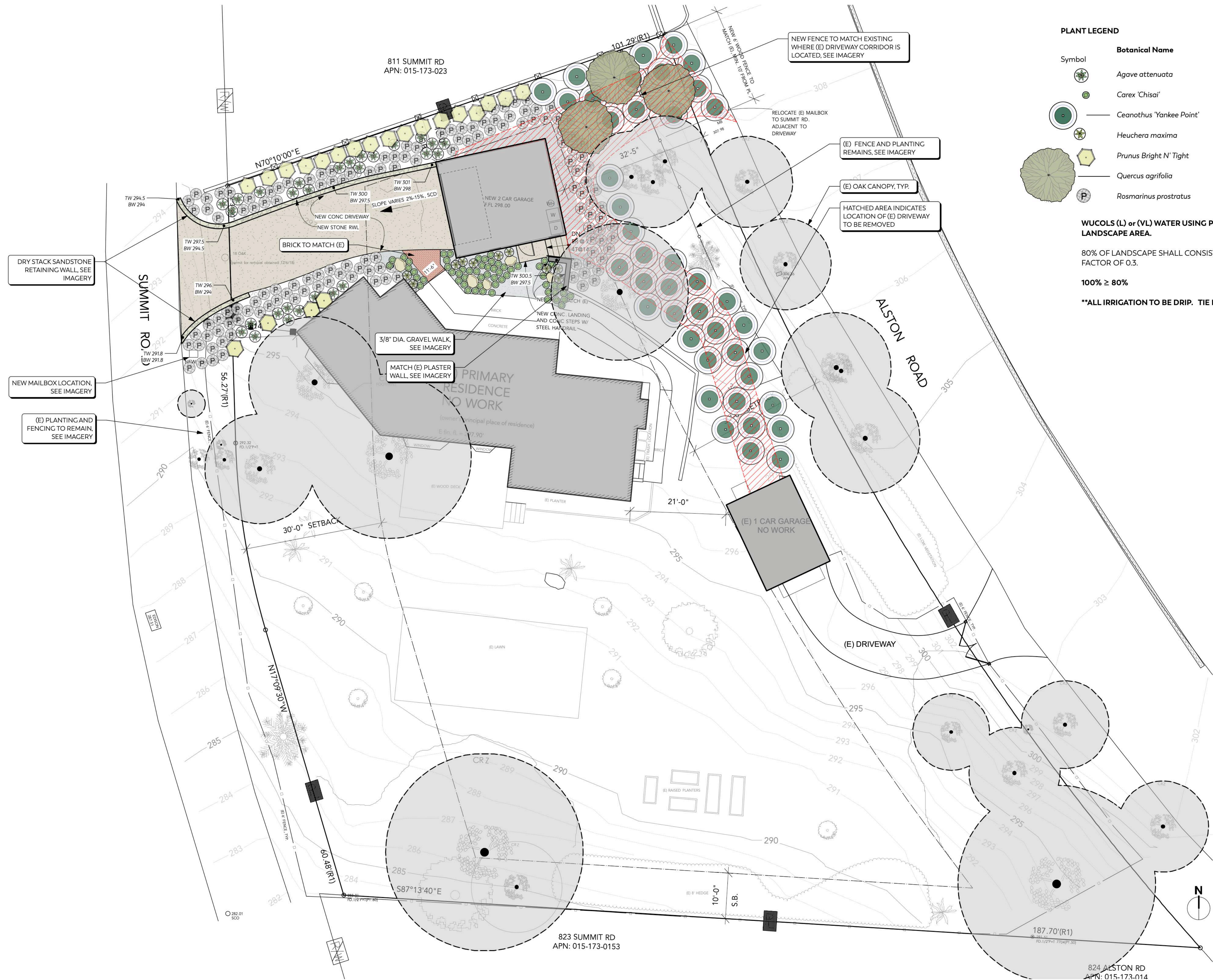
3 Typical Roof Eave
scale: 1 1/2" = 1'-0"



2 Garage Wall Base @ Retaining Walls
scale: 1 1/2" = 1'-0"



1 Below Grade Garage Wall
scale: 1 1/2" = 1'-0"



Symbol	Botanical Name	Common Name	Size	Spacing	WUCOLS
	Agave attenuata	Foxtail Agave	From Site	3'0"	L
	Carex 'Chisai'	Fine California Field Sedge	1 gal	1'6"	L
	Ceanothus 'Yankee Point'	Yankee Point Ceanothus	5 gal	6'0"	L
	Heuchera maxima	Island Alum Root	5 gal	3'0"	L
	Prunus Bright N' Tight	Carolina Laurel	15 gal	4'0"	L
	Quercus agrifolia	Coast Live Oak	24" Box	12'0"	L
	Rosmarinus prostratus	Creeping Rosemary	5 gal	3'0"	L

WUCOLS (L) or (VL) WATER USING PLANTS: 1875 SF OR 100% OF TOTAL IRRIGATED LANDSCAPE AREA.

80% OF LANDSCAPE SHALL CONSIST OF PLANTS THAT AVERAGE A WUCOLS PLANT FACTOR OF 0.3.

100% ≥ 80%

****ALL IRRIGATION TO BE DRIP. TIE INTO (E) IRRIGATION SYSTEM.**

RMLA

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Santa Barbara, CA 93101
www.robmaday.com

LANDSCAPE ARCHITECT
ROBERT MADAY #518
SANTA BARBARA
CALIFORNIA
STATE OF CALIFORNIA

NEWMAN RESIDENCE
820 Alston Road
Santa Barbara, CA

DATE: 04.27.2020
DRAWN BY:
CHECKED BY:
PROJECT #:

REVS / SUBS
NO. DESCRIPTION

SHEET:
L1.0

SITework SPECIFICATIONS

2010 GENERAL REQUIREMENTS

- 2011 SCOPE: The proposed work consists of the following: Earthwork, storm drainage, utilities, paving, retaining walls, and related elements.
- 2012 DETAIL: The drawings are intended to show or reference all details necessary to construct the proposed work. The contractor shall review these drawings and determine prior to commencement of construction if additional details or clarification of information is necessary. The engineer shall be given sufficient time to provide any additional information prior to construction.
- 2013 EXISTING CONDITIONS: The contractor shall verify all existing conditions and measurements shown on the drawings and report any differences to the engineer prior to construction.
- 2014 PROTECTION OF FACILITIES: The contractor shall be responsible for all on and off site structures, streets, utilities and landscaping.
- 2015 SURVEYING: The contractor shall provide for all surveying required to locate property lines, set flow lines of pipes and gutters to locate new final grades and any other surveying required to construct the improvements.
- 2016 PERMITS: The contractor shall pay for all permits, licenses and fees required by the governing agencies except the owner shall pay for the general building and grading permits. The contractor may be required to sign the general building and grading permits.
- 2017 INSPECTION: The contractor shall be responsible for requesting, coordinating and obtaining all inspections required by the local building codes. Allow 24 hours advance notice.
- 2018 SPECIAL INSPECTION: Special testing and inspection by a certified material testing laboratory and/or licensed special inspector may be required as noted below. The contractor shall be responsible for requesting, coordinating and obtaining all inspections and testing as may be required. The owner shall pay for the initial testing and inspection. Any additional testing and inspection required by the contractors performance or scheduling shall be paid by the contractor.

1. Observe the over excavation to determine that the depth of excavation and bottom of the subgrade are suitable.
2. Observe the exposed subgrade and keep it in grade to receive fill and in areas where excavation has resulted in the desired finished subgrade, observe proof rolling and delineate areas requiring additional excavation.
3. Perform visual observation to evaluate the suitability of on-site and imported soils for placement, compacted and submit soil samples for laboratory testing.
4. Perform field density and compaction testing to determine the percentage of compaction achieved during placement of fills.
5. Observe and probe foundation bearing materials to confirm that suitable bearing materials are present at the design grade.
6. Observe and test the backfill of retaining walls.
7. Observe and test the backfill of utility trenches.
8. Observe and test the construction of the subgrade and base for exterior paving.
9. Observe the construction and protection of slopes.

- 2019 RECORD KEEPING: The contractor shall keep a set of the approved drawings, permits and contract documents in a protected on the location of all times and shall keep daily field reports of all special inspection and testing.

- 2020 AS BUILT DRAWINGS: The contractor shall keep accurate as-built drawings of all work as required such that final drawings by the engineer may be provided to the owner.
- 2021 AUTHORIZED CHANGES: The engineer shall review and approve any changes to the drawings or specifications prior to construction.

- 2022 CODE REQUIREMENTS: All work shall be performed in accordance with the latest edition of the California Building Code, unless specifically noted otherwise in the drawing or specification.

- 2023 PLAN COORDINATION: The contractor shall refer to the project architectural drawings including those for site plan, layout, building, mechanical, electrical and landscaping improvements and for interfacing with all improvements called for therein.

- 2025 CLEAN UP: Remove all waste, debris, excess materials, tools and equipment from the premise.

2050 DEMOLITION

- 2051 REMOVAL: Specific existing improvements shall be removed as required to construct new improvements. Where required the improvements to be removed shall include disconnection and capping of utilities lines serving the improvements and any foundation structures supporting such improvements.

- 2052 UTILITIES: Location of existing utilities may or may not be showed in their entirety or exact location on the drawing. Contractor shall determine actual extent and location of utilities. Contractor shall coordinate disconnection of utilities with the utility company and owner. Where shown on the drawings, utilities may be abandoned in place, unless they conflict with new improvements. Contractor shall provide for temporary disconnection where reconstruction is required.

- 2053 SALVAGING OF MATERIALS: Where saving of materials to be removed is required, the contractor shall deliver materials to an on site storage location designated by the owner.

- 2054 PAVEMENT: Where required by the drawings, certain sections of pavement shall be replaced or removed. The contractor and engineer shall meet at the site and designate the specific areas to be replaced or removed. All cuts in pavement shall be made by sawcutting to create straight and neat joints.

2200 SHORING AND BRACING

- 2201 SHORING AND BRACING: The contractor shall be responsible for all excavation including shoring and protecting of adjacent property, structures, streets, utilities.

- 2202 SHORING: The contractor is responsible for the design and construction of any shoring required to meet OSHA requirements.

2250 EARTHWORK

- 2251 CODE REQUIREMENTS: All grading shall conform with Appendix J of the California Building Code, the local grading ordinances and the soils/geotechnical report.

- 2254 Reports: Prelim Geotechnical Investigation by Pacific Materials Lab Oct. 31, 2016.

2255 SPECIFIC REQUIREMENTS

Grading Recommendation per soils report:

PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

It is the opinion of this Laboratory the proposed grading and construction are feasible from a soil-engineering perspective provided the recommendations contained in this soil engineering report are incorporated into the design and implemented during construction.

It is the understanding of this Laboratory the proposed addition, detached garage and the garage conversion to ADU will be one- and/or two-story wood frame structures with concrete slab-on-grade and/or raised wood floors. A new driveway will extend from the detached garage west toward Summit Road. Based upon this understanding, we present the following preliminary recommendations:

GRADING

1. The area to be graded shall be cleared of surface vegetation, including roots and root structures.
2. If, during the removal and scarification process, excessive root structures are encountered, these areas shall be deep ripped in two directions to the depth of the root structure, after which the disturbed soils and the roots shall be completely removed, and the resulting cavities shall be scarified and processed to receive fill in accordance with recommendations contained in this section.
3. The footings of the proposed structures shall either be supported completely by a uniform thickness of compacted soil or the foundations shall be designed to penetrate the fill and compressible material such that the structure is supported either completely over fill or completely on firm original ground. The structures shall not be supported over a cut/fill transition unless the foundation is engineered to account for the transition. In order to create a uniform thickness of fill, it may be required to overexcavate an additional depth on the uphill or cut side of the pad and replace the soil as compacted fill beneath the proposed structures and for a minimum distance of 5 feet beyond the exterior perimeter.

4. If it is decided to place the structures over a compacted fill, the area to be graded shall be prepared. In the area to be prepared, the loose soil and compactable surface soils shall be removed and observed by a representative of our firm. Upon approval of excavation, the exposed ground surface shall be scarified an additional 5 to 8 inches, moistened or irrigated to near the optimum moisture content, and compacted to 90% of the relative compaction. We anticipate the depth of the surface soil removal to be from 30 to 36 inches below the existing grade. The minimum depth of removal shall be at least 12 inches below the bottom of the proposed footings.
5. The removed surface soils and/or imported approved fill may then be placed in areas that of approximately 8 inches, thoroughly mixed, moistened or irrigated to near optimum moisture content, and compacted to a minimum of 90% relative compaction.
6. Roots greater than 6 inches in size shall be removed from the soil lying spread for compaction.
7. All fill slopes which are created during the grading operation shall be properly shaped to a maximum slope angle of 3 horizontal to 1 vertical, and compacted by rolling the deepfoot roller or similar compaction equipment over the slope face at vertical lift intervals of 30 inches or less.
8. Import soils, if required for compacted fill, shall be granular, non-expansive soils which are equal to, or superior in quality to, the on-site soils as recommended by this Laboratory prior to importation of the fill material to the site. This is not referring to retaining wall backfill. See the RETAINING WALLS section of this report for retaining wall backfill requirements.
9. The compaction standard shall be the latest edition of the ASTM D-1557 method of compaction.
10. Positive surface drainage shall direct water away from all slopes and away from the foundation system of the proposed structures.

PAVEMENT

1. In the areas to be paved, we recommend the top loose surface soils be removed, then below the proposed final subgrade elevation, moistened or irrigated to or near the optimum moisture content, and compacted to 90% relative compaction with the top 12 inches being compacted to 95% relative compaction where pavement will be subject to vehicle travel or parking. The subgrade area shall be checked rolled in order to detect localized soft spots. Any areas found to be yielding under the wheel loads of the equipment shall be stabilized by removal and replacement.
2. The Class 2 aggregate base shall be recommended to a minimum of 10% relative compaction in accordance with the ASTM D-1557 test method. Asphalt concrete shall be placed only after the Class 2 aggregate base has been demonstrated to be firm and unyielding.
3. If asphalt pavement is selected for the finished pavement surface, we recommend an R Value of the subgrade soil be performed by this Laboratory in order to provide appropriate thickness of Class 2 aggregate base and asphalt concrete.
4. Maintenance to assist in reducing the potential for rapid deterioration of the asphalt paved areas shall include surface treatment approximately six months to one year after construction and approximately three years from the first treatment. Pavement conditions should be reviewed at least once a year for cracks, raveling of surface water and overall appearance. If possible, this review should be done in the fall such that cracks may be repaired which may otherwise allow moisture to pass through the pavement and weaken the subgrade.

2256 EARTHWORK ESTIMATE: cu. yds. (for permit purposes)	within 5' of Bldg. footprint	outside footprint
Cut	60	35
Fill	60	35
Total	60	35

Note: Exact shrinkage, consolidation and subsidence factors and losses due to clearing operations are not included. Estimated earthwork quantities are based on the difference between existing ground surface and proposed finished grades as shown on the plan, or subgrades and should vary according to these factors. Contractor shall confirm existing topography, shall review the site and the soils reports, and shall perform an independent quantity takeoff and bid accordingly.

2350 UTILITY TRENCHING

- 2351 UTILITY TRENCHING AND BACKFILL: Vertical trench excavations less than 5 feet deep should be capable of standing with minimum shoring or bracing for short construction periods. Trenches 5 feet or more deep should be provided with more substantial shoring or bracing. The attention of contractors should be drawn to the State of California Construction Safety Orders for "Excavations, trenches, Earthwork".

- 2352 BEDDING: For the purposes of this section, bedding is defined as material placed in a trench up to 1 foot above a utility pipe and backfill is all material placed in the trench above the bedding. Unless concrete bedding is required around utility pipes, free sand shall be used for bedding. Sand proposed for use in bedding should be tested in laboratory to verify its suitability and to measure its compaction characteristics. Sand bedding should be provided for temporary disconnection where reconstruction is required, relative density based on ASTM tests D-4283 and D-4284.

- 2353 BACKFILL: Approved, on site, inorganic soil, or imported materials may be used as utility trench backfill, a sample of it should be tested and approved by the soils engineer before any is delivered to the site.

- 2354 COMPACTION: Proper compaction of trench backfill will be necessary under and adjacent to structural fill, building foundations, concrete slabs and vehicle pavements. In these areas, backfill should be conditioned with water to produce a soil-water content of about 3 to 5 percent above optimum value and placed in horizontal layers not exceeding 6 inches in thickness (before compaction). Each layer should be compacted to at least 90% relative compaction based on ASTM Test D-1557. The upper 12 inches of trench backfill under vehicle pavements should be compacted to at least 95% relative compaction. Where any trench crosses the perimeter line of any building, the trench should be completely plugged and sealed with compacted clay soil for a horizontal distance of 2 feet on either side of the foundation.

2400 POTABLE WATER SYSTEM

- 2401 CODE: The potable water system shall be installed in accordance with the latest edition of the California Plumbing Code.

- 2402 LIMITS: This section addresses underground domestic water from the meter to a point two feet outside of any new buildings or to the point of connection of existing buildings.

- 2403 PIPE AND FITTINGS: Pipe and fittings shall be type L copper with soldered joints or schedule 40 PVC with solvent weld or threaded joint and shall conform to the requirements of the CPC. All above grade pipe shall be metal.

- 2404 VALVES: Valves shall be PVC construction rated for 150 psi as manufactured by Rigm-Herc Products Corporation or equivalent. PVC valves greater than 2" diameter shall not be used unless approved by the engineer.

- 2405 INSTALLATION: Pipe assembly and installation shall be in accordance with AWWA and CPC standards and with the manufacturer's guidelines and recommendations. Pipe fittings and appurtenances shall fit in place without strain and shall be supported and anchored as necessary.

Above ground piping systems shall include union or flange connections placed as necessary to allow removal of system components for servicing or repair; piping shall be supported or anchored at intervals recommended by the manufacturer for the intended application, not to exceed intervals required by the current edition of the California Plumbing Code. Pipe and fittings shall be assembled using non-toxic lubricants and compounds.

Unless otherwise called for on the plans or otherwise specified herein, adoption from PVC to iron or steel pipe and fittings installed below ground shall be wrapped with coal tar tape applied over its compaction primer.

- 2407 TESTING: Hydrostatic pressure test in accordance with the CPC.

- 2408 PRESSURE REGULATOR: Shall be installed adjacent to the water valve near the service entrance to each living unit, unless otherwise specified. The pressure regulator shall be IAMPRO approved.

- 2409 Meters: The ADU shall receive a private submeter in a easily accessible location. Contractor to submit product data for approval.

2550 STORM SEWAGE SYSTEMS

- 2551 STORM DRAINAGE: Prior to commencement of storm drainage installation, the contractor and engineer shall meet to review the proposed storm drainage plan.

- 2552 SCHEDULING: Contractor shall schedule gravity pipeline work ahead of other underground conduit construction.

- 2553 LAYOUT: Gravity storm drain work shall begin at the lowest point and proceed upstream.

- 2554 CONCRETE: Concrete for all drainage facilities shall be 2000 psi @ 28 days.

- 2556 NON-METALLIC PIPE: Storm drain piping 6" diameter and less unless specifically noted otherwise shall be non-perforated heavy duty smooth wall poly polyethylene pipe conforming to ASTM F808 as manufactured by Advanced Drainage Systems, Hanco or equal. Corrugated pipe may be used from the downspout to the collector drain line. Fittings shall be heavy duty polyethylene and selected to fit pipe and drain boxes. Unless noted otherwise, all pipe shall be laid at a minimum 1/4" per foot slope.

For storm drain pipe greater than 6" in diameter use heavy duty, non-perforated corrugated HDPE pipe with smooth lining as manufactured by Advanced Drainage System N-12 or equal.

PVC (Polyvinyl Chloride) Pipe shall conform to the requirements of ANSI/ASTM D2524-78, Type PSM for gravity flow sewers and shall be SDR 35. Gaskets shall be flexible elastomeric seals meeting the requirements of ASTM D3212-TT.

- 2557 CORRUGATED METAL PIPE (CMP): CMP shall be 12 gauge (0.109") with 2 1/8 in. spall and 1/2 in. depth of corrugation with caproil. Invert paving of 1/8" thick. CMP shall be installed in accordance with the manufacturers recommendations and shall include appurtenances such as band clamps, gasket anchors, etc. as required for a complete installation.

- 2558 TESTING: Underground storm drainage system, shall be water pressure tested prior to turning pipes.

- 2554 CODE REQUIREMENTS: All private storm drain improvement materials and construction methods shall be in accordance with these drawings and the requirements of the local building department.

- 2560 RAIN GUTTERS AND DOWNSPOUTS: The finished structure shall be fitted with rain gutters and downspouts. Gutters shall be installed on all roof rain water run-off to underground drainage system or hard paved surface as indicated. Rain gutters and downspouts shall be per the architectural drawings. Gutters tributary to underground chambers shall be screened with a lead guard of 3/4" to 1" min corrosion resistant metallic hardware fabric.

- 2561 TRENCHING: For bedding and backfill material see Section 2350.

- 2563 DRAIN BOXES: For CMP or RCP pipe shall be cast in place concrete. Precast drain boxes as manufactured by Associated Concrete Products or equal may be used in lieu of cast-in-place boxes. Drain boxes for non-metallic pipe may be PVC, ABS, PE in lieu of concrete if located in non-vehicle traffic areas.

Submit shop drawings to engineer for approval if precast concrete boxes to be used.

- 2565 GRATES: Grates for non-metallic drain boxes shall be PVC or ABS, or PE or equal grade shall be molded to fit the drain box. Grates in hard surfaced patio areas shall be brass or bronze grate and frame as manufactured by the Zim company or equal. Contractor to submit shop drawings of all grates to engineer for approval prior to installation.

- 2566 DRAINAGE DITCHES: Where rock in mortar drainage ditches adjacent to road pavement occurs, use 4-8 diameter sandstone boulders of dressed stone set in a grout (2000 psi @ 28 days) with 6x6, 10/10 w/c mesh.

- 2567 FRENCH DRAIN: Pipe shall be PVC or ABS smooth wall non corrugated with small pore size such as H-ral 140 N or equal. Holes shall be placed at 4' O'clock and 8' O'clock.

The French drain should be placed on the outside of the continuous footing in the area to be protected. It should consist of a minimum 4" rigid PVC perforated pipe at the bottom of a 12" wide trench filled with the free draining gravel. The gravel shall be wrapped with a filter fabric.

- 2568 FILTER FABRIC: Shall be a non woven geotextile fabric with high flow capacity and shall be provided with more substantial shoring or bracing. The attention of contractors should be drawn to the State of California Construction Safety Orders for "Excavations, trenches, Earthwork".

- 2570 GRAVEL FILTER: Shall be 3/4"-1" diameter round rock.

- 2571 UNDERGROUND STORM WATER SYSTEM: Shall be pre-fabricated, high capacity, arch shaped, open bottom, traffic rated chambers molded from HDPE (plastic or equal) as manufactured by ADS or Culltec. Submit shop drawings.

2600 SANITARY SEWAGE SYSTEMS

- 2601 CODE REQUIREMENTS: The sanitary sewer system shall be installed in accordance with the latest edition of the California Plumbing Code.

- 2602 LIMITS: This section covers the building sewer line from the face of the building to the connection to the existing sewer system.

- 2603 PIPE AND FITTINGS: Sanitary sewer pipe 4 inches in diameter and less shall be ABS rated sewer pipe per ANSI D 2751-80.

- 2604 INSTALLATION: Unless specifically noted otherwise, pipe shall be laid at a minimum 1/4" per foot slope. Bedding and backfill shall be in accordance with Section 2350.

- 2605 TESTING: Testing of underground pipe shall be in accordance with CPC.

- 2607 CLEAN OUTS: Cleanouts shall be installed in accordance with CPC.

2650 GAS SYSTEMS

- 2651 CODE REQUIREMENTS: The gas system shall be installed in accordance with the latest edition of the California Plumbing Code.

- 2652 LIMITS: This section covers the gas line from the existing gas service to a point 2 feet outside of any new building.

- 2653 PIPE AND FITTINGS: Gas piping shall be FE natural gas yard piping per ASTM 2513.

- 2654 VALVES: A shutoff valve shall be located in line before the gas piping enters the building.

- 2655 INSTALLATION: Unless specifically noted otherwise, pipe shall have 18" earth cover and number 18 copper tracer wire and shut off valve at house.

- 2656 TESTING: Testing of underground pipe shall be in accordance with CPC 1210.2.

2800 PORTLAND CEMENT CONCRETE PAVING

- 2801 CODE REQUIREMENTS: All concrete construction shall be installed in accordance with the ACI standards of practice.

- 2802 EXPANSION JOINTS: Expansion joints shall be installed wherever concrete is restricted from moving such as where it abuts other concrete surfaces, curbs, existing structures, etc. These joints shall be premoiled, elastic resilient material 3/4" thick.

- 2803 CONTROL JOINTS: Control joints shall be placed at 15-20 ft. intervals and shall be 3/4" to 1" deep. Consult with engineer for final appearance.

- 2804 CURING: The contractor shall determine curing methods to provide complete and careful curing of all concrete work.

- 2805 LAYOUT: Plan elevations shown on walkways are for drainage and rough grading design only. It shall be contractor's responsibility to perform detailed layout for and to construct walkways, ramps, and steps in conformance with all building code requirements including those for dimensioning and surface texture.

- 2807 PAVEMENT DESIGN: Concrete flatwork shall have a minimum structural section as follows:

LOCATION	EARTH SUBGRADE BASE	CONCRETE STRENGTH	CONCRETE REINFORCEMENT
Patio	Sidewalk 18" comp 4" sand 5"/2500 psi #4s @ 18" O/CEN		

- 2808 RECOMPACTION: Earth subgrade and base shall be recomacted to 95% relative compaction per ASTM D-1557.

- 2804 FINISHES: Concrete flatwork shall have the following finishes unless specified otherwise by the Architect:

LOCATION	FINISH	COLOR/CONCRETE
Sidewalks	Steel Trowel Light Broom	Colored, stamped concrete
Patios	Steel Trowel Light Broom	Colored, stamped concrete
Stairs	Steel Trowel Light Broom	Colored, stamped concrete

2875 RETAINING WALL

(For one side wall.)

- 2876 EXCAVATION: Footings shall be placed in firm natural ground.

- 2877 EXCAVATION INSPECTION: Soils engineer shall inspect all footing excavations before installing reinforcing steel or forms.

- 2878 FOOTINGS: Concrete shall be 2500 psi @ 28 days conforming to ASTM C130.

- 2879 REBAR: Shall be ASTM A 615, grade 60 for #5 bars and larger, grade 40 for #4 bars and smaller.

- 2880 REBAR SPLICE: Minimum rebar splice shall be 40 bar diameters. Rebar splices in adjacent bars by the length of the splice.

- 2881 MORTAR: Mortar shall be type M or S.

- 2882 MASONRY: Masonry shall be Fm = 1500 psi.

- 2883 GROUT: Grout all cells. Grout shall be 2000 psi @ 28 days.

- 2884 EXPANSION JOINTS: Walls which are not adjacent to the existing wall have expansion joints at a maximum spacing of 30 feet on center.

- 2885 WATERPROOFING: Walls shall be waterproofed per the architect requirements.

- 2886 BACKFILLING: Backfill shall be free-draining granular soil. Compact to 90% relative density. Allow wall to gain 21 days strength before backfilling. If backfill supports driveway compact to 95% relative density.

- 2887 DRAINAGE: Provide continuous 4" perforated ABS drain line behind all walls. Drain shall be sloped 1/8" towards outlet. Contractor shall provide filter blanket in gravel bed to prevent plugging of perforations.

- 2888 BLOCK: Concrete blocks shall conform to ASTM C40.

- 2884 EXPANSION JOINTS: Provide vertical expansion joints at max. 30' intervals by placing rubber-strip or calotex for full vertical hgt. of wall. Longitudinal steel to terminate on each side of joint.

- 2890 CODE: All work shall be in accordance with 2016 CBC.

- 2884 EXPANSION JOINTS: Provide vertical expansion joints at max. 30' intervals by placing rubber-strip or calotex for full vertical hgt. of wall. Longitudinal steel to terminate on each side of joint.

- 2890 CODE: All work shall be in accordance with 2016 CBC.

- 2884 EXPANSION JOINTS: Provide vertical expansion joints at max. 30' intervals by placing rubber-strip or calotex for full vertical hgt. of wall. Longitudinal steel to terminate on each side of joint.

- 2890 CODE: All work shall be in accordance with 2016 CBC.

- 2891 SPECIAL INSPECTION: Special inspection is required for the following retaining wall work:
A. Footing excavation by Soils Eng.

- 2892 TOP OF WALL: Top of wall shall be stepped as required to be 6" above shade.

- 2894 WALL CAP: Top of wall shall be steel trowel finished.

- 2895 WOOD FRAME: Backfill and compact soil before placing wood frame for the building.

PROJECT IS HILLSIDE DESIGN > 500 SF NEW OR REPLACED IMPERMEABLE THEREFORE TIER 3.

PREScriptive MEASURES INCLUDE:
UNDERGROUND STORM WATER CHAMBERS.

STORM WATER MANGEMENT

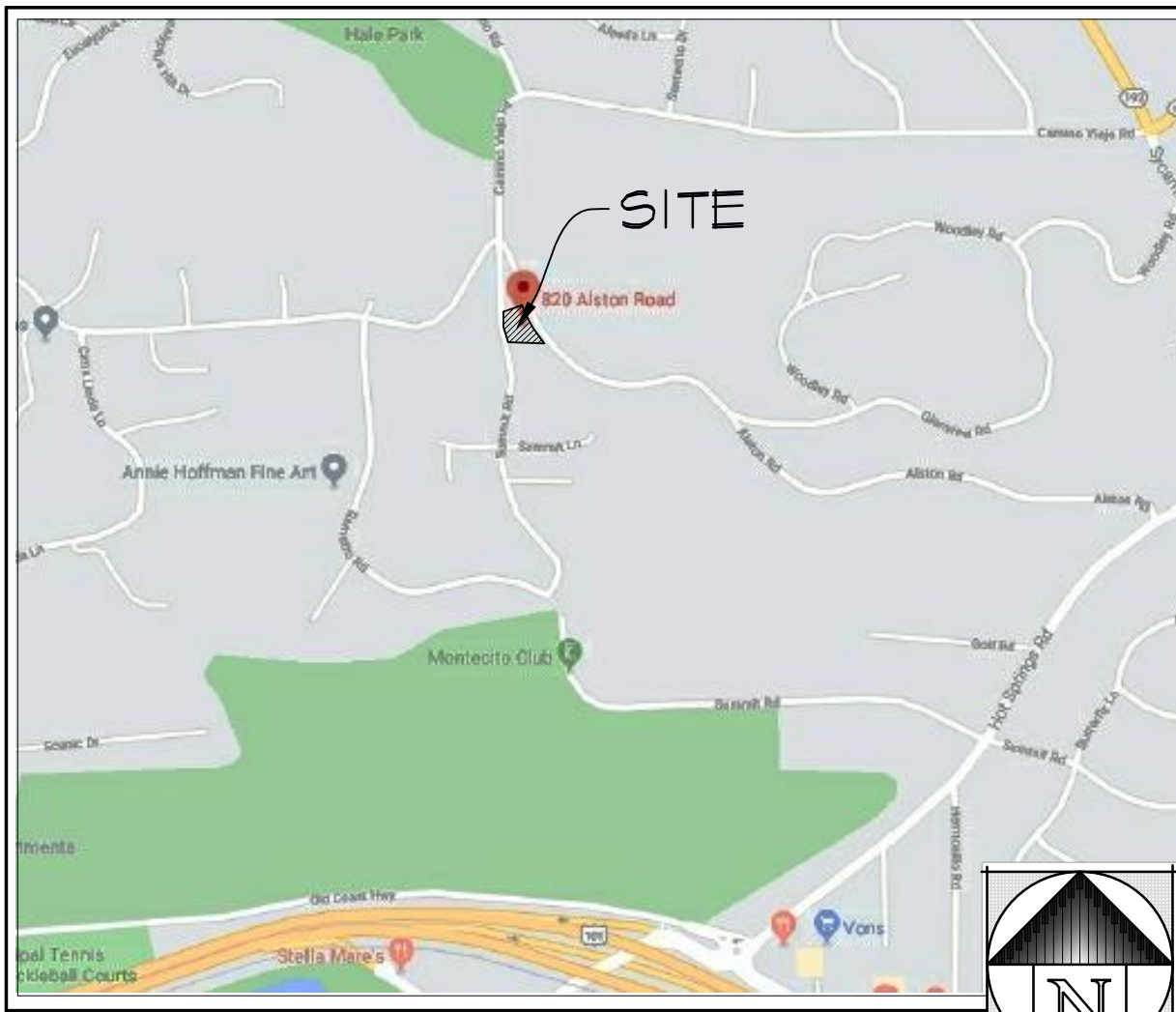


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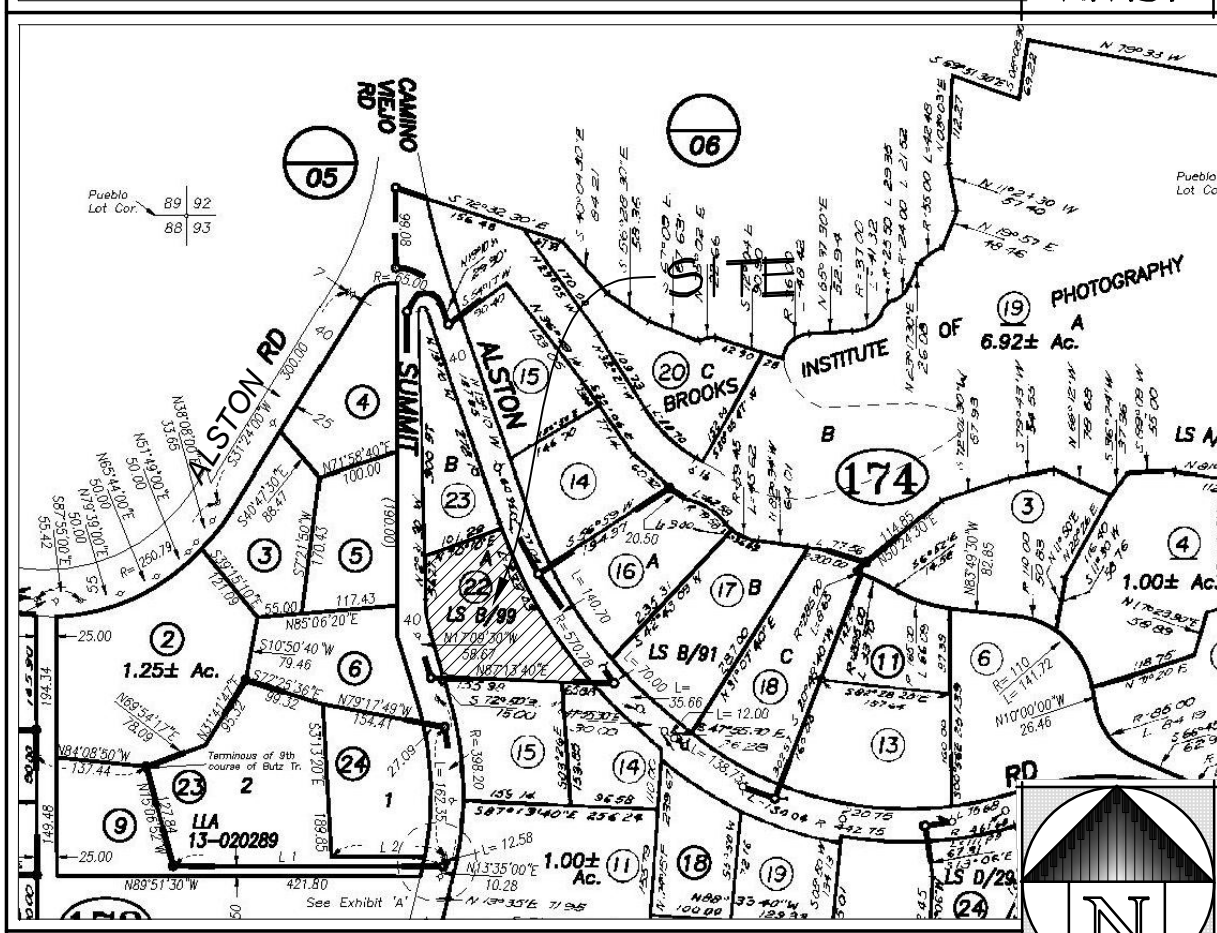
ALL UNDERGROUND UTILITIES AND SUBSTRUCTURES SHOWN HEREON WERE OBTAINED FROM THE BEST AVAILABLE SOURCES AND ARE PRESUMED TO BE ACCURATE AND COMPLETE. BUT SINCE THIS INFORMATION WAS OBTAINED FROM OTHERS, THE OFFICE OF M&S ENGINEERS, INC. CANNOT GUARANTEE SAID INFORMATION AS BEING ACCURATE AND COMPLETE. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO VERIFY, LOCATE, AND PROTECT ALL UTILITIES AND SUBSTRUCTURES SHOWN OR NOT SHOWN.

CALL UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA TOLL FREE AT 1-800-422-4133 TWO WORKING DAYS BEFORE YOU DIG

UNDERGROUND SERVICE ALERT



VICINITY MAP



ASSESSORS MAP

PROJECT ADDRESS:	820 ALSTON RD. SANTA BARBARA, CA. 93108
OWNER:	ALEXA NEWMAN 820 ALSTON RD. SANTA BARBARA, CA 93108
PROPOSED WORK:	GRADING, DRAINAGE, PAVING, RETAINING WALL, UTILITIES & RELATED SITE WORK & EROSION CONTROL. FOR DETACHED 2 CAR GARAGE.
APN:	015-0T3-022
LAND USE ZONE:	RS-25
LOT AREA:	0.51 ACRES/24,695 S.F.
FLOOD ZONE:	NO
FIRE ZONE:	YES
GRADING QUANTITIES:	SEE SPEC SECTION 2256 THIS SHEET

PROJECT DATA

1. ARCHITECTURAL DRAWINGS BY ALEXA NEWMAN, ARCHITECT
PH# (805) 280-1185
2. TOPOGRAPHICAL SURVEY BY PROBER LAND SURVEYING,
PH# (805) 452-4640
3. GEOTECHNICAL INVESTIGATION BY PACIFIC MATERIALS LAB.
PH# (805) 964-6401 DATED OCT. 31, 2019

REFERENCES

1. WATER	CITY OF SANTA BARBARA	1-805-564-5413
2. SEWER	CITY OF SANTA BARBARA	1-805-564-5413
3. GAS	THE GAS COMPANY	1-800-427-0200
4. CABLE T.V.	COX COMMUNICATIONS	1-805-688-6681
5. TELEPHONE	VERIZON	1-800-483-4000
6. ELECTRICITY	SOUTHERN CALIFORNIA EDISON	1-800-884-8123

UTILITY COMPANY & CONTACTS

- C1.0 SITework SPECIFICATIONS, SITE DATA
- C2.0 GRADING, DRAINAGE & UTILITIES PLAN, CONSTRUCTION NOTES
- C3.0 SITE SECTIONS, STORM WATER MANAGEMENT
- C3.1 EROSION CONTROL PLAN AND DETAILS
- C4.0 SITework DETAILS

SHEET INDEX

STAMP

MIKE GONES
CIVIL ENGINEER

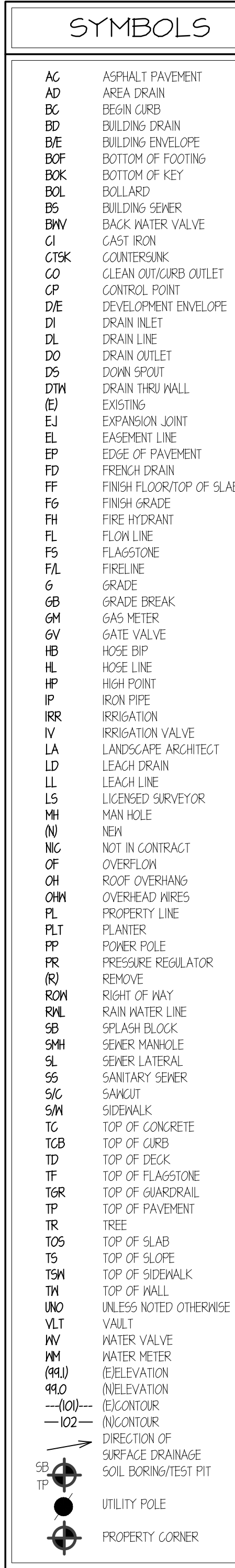
PH: (805) 966-2260
FAX: (805) 966-5800
mikesgonese@csn.net

REG. 38488
1219 1/2 LAGUNA ST.
SANTA BARBARA, CA 93101

NEWMAN RESIDENCE
820 ALSTON ROAD
SANTA BARBARA, CA 93108

Drawings by EG

DATE: 12/18/2019



LEGEND

B51 (E) SEWER LATERAL.
 B52 INSTALL BLDG SEWER AT 2% MIN. SLOPE. CONNECT TO (E) BUILDING DRAIN UNDER HOUSE.
 B53 (E) BLDG. SEWER ASSUMED LOCATION.
 B54 INSTALL SEWER CLEANOUT DET. 1/4" O.D.

D1 REMOVE TREE (STUMP PERMIT TO REMOVE OBTAINED 12/6/18).
 D2 REMOVE FENCE.
 D3 REMOVE DRIVEWAY.
 D4 REMOVE RET. WALL.
 D5 REMOVE TREE & STUMP.
 D6 RELOCATE TREE.

E1 (E) ELECTRIC PANEL.

E2 INSTALL CONDUIT AS REQ'D FOR UNDERGROUND SCE (SEE ELECT. DRWG'S FOR TRENCHING).
 E3 VERIFY LOCATION OF POINT OF CONNECTION FOR EDISON.

EN1 REMOVE AND RECOMPACT TOP 36 INCHES OF SOIL @ 90% REL. COMPACTION.

G1 EXISTING GAS METER.
 G2 INSTALL GAS SHUT OFF VALVE.
 G3 POINT OF CONNECTION TO (E) GAS LINE (VERIFY).

M1 SAWCUT AC FOR NEAT CUT WHERE APRON REMOVED.
 M2 INSTALL CONCRETE STEPS PER DET. 6/C.4 5R @ 7", 4T @ 14".
 M3 INSTALL FENCE/WALL/GATE PER ARCH.
 M4 INSTALL FENCE PER ARCH. H=6'.

P1 INSTALL CONC. DRIVEWAY PER DET. 3/C.4.
 P2 REMOVE DRIVEWAY APRON REPLACE W/3" GRAVEL.
 P3 INSTALL STONE CURB PER DET. 1/C.4
 P5 GRAVEL WALK OR LANDINGS PER OWNER.
 P6 GRID LINES COLOR AND FINISH HETUREX PER ARCHITECT. CONTROL JOINTS, EXPANSION JOINT PER SIDEWALK SPECS.

RN1 CONSTRUCT SITE WALL PER DET. 8/C.4.O.
 RN2 CONSTRUCT SITE WALL PER DET. 1/C.4.O.
 RN3 SEE STRUCT. DRWG'S FOR RET. WALL THAT IS PART OF BLDG.
 RN4 CONSTRUCT SITE WALL PER DET. 8/C.4.O.

SD1 INSTALL YARD DRAIN PER DETAIL. 4/C.4.O W=6.
 SD2 CONNECT FD TO DL.
 SD3 INSTALL ENERGY DISSIPATOR PER DET. 5/C.4.O. W=3' L=4'
 SD4 CONNECT DS TO RN1L.
 SD5 INSTALL 4" FD @ 1% MIN. SLOPE. CONNECT TO OUTLET.
 SD6 INSTALL 6" DL @ 2% MIN.
 SD7 INSTALL STRIP DRAIN PER DET. 4/C.4.O
 SD8 OUTLET FD INTO SWALE.
 SD9 INSTALL ROCK SWALE PER DET. 13/C.4.O
 SD10 INSTALL SWALE PER DET. 11/C.4.O
 SD11 INSTALL 8" CULTEC 280 HD STORM CHAMBERS PER DET. FLOOR ELEV. 285.0 PER DET. 18-20/C.4.O.
 SD12 INSTALL 8" RN1L @ 2% MIN.
 SD13 INSTALL 6" RN1L @ 2% MIN.
 SD14 INSTALL 4" RN1L @ 2% MIN.
 SD15 CONVERT 8" RN1L TO 4" RN1L DET. 12/C.4.O SIM.
 SD16 INSTALL PATIO DRAIN PER DET. 16/5.4 AND CONNECT TO RN1L W=6".
 SD17 INSTALL 8" OVERFLOW DL.
 SD18 CONVERT 4" OVERFLOW DRAINS TO 8" DL DET. 12/C.4.O
 SD19 INSTALL 8" DL @ 2% MIN.
 SD20 CONNECT (E) DS TO (N) RN1L.
 SD21 CONNECT CULTEC T-80 UNDERGROUND FILTER PER DET. 15/C.4.O

T1 TELEPHONE PULL BOX PER TELEPHONE CO. REQUIREMENTS.
 T2 INSTALL CONDUIT AS REQUIRED FOR TELEPHONE.
 T3 LOCATION OF (E) POINT OF CONNECTION FOR TELEPHONE IS TO BE DETERMINED.

W1 (E) 1 1/2" WATER METER TO SERVICE TO (E) MAIN RESIDENCE.
 W2 RECONNECTION POINT FOR WATER SERVICE.
 W3 INSTALL PRESSURE REGULATOR AND WATER VALVE.
 W4 RELOCATE 2" PVC WATER LINE PVC DOMESTIC WATER LINE FOR MAIN RESIDENCE.
 W6 INSTALL 3" BRANCH AND PRIVATE WATER SUBMETER.

S T A M P

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CONSCIENCE

820 ALSTON ROAD
SANTA BARBARA, CA 93108

Drawings by EG

DATE: 12/18/2019

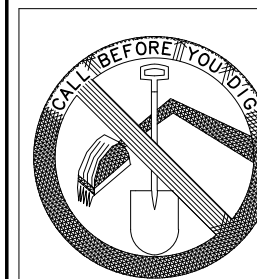
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SHEET 2 of 5

UNDERGROUND SERVICE ALERT



ATTENTION

ALL UNDERGROUND UTILITIES AND SUBSTRUCTURES SHOWN HEREON WERE OBTAINED FROM THE BEST AVAILABLE SOURCES AND ARE PRESUMED TO BE ACCURATE AND COMPLETE, BUT SINCE THE INFORMATION WAS OBTAINED FROM OTHERS, IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO VERIFY, LOCATE, AND PROTECT ALL UTILITIES AND SUBSTRUCTURES SHOWN OR NOT SHOWN.

MARK OUT PROPOSED EXCAVATION AREA IN WHITE PAINT OR PROVIDE OTHER SUITABLE MARKINGS

CALL UNDERGROUND SERVICE ALERT AT 811 FROM 6AM TO 7PM, MONDAY THROUGH FRIDAY (EXCLUDING HOLIDAYS) AT LEAST TWO BUSINESS DAYS BEFORE DIGGING. NOTIFYING UNDERGROUND SERVICE ALERT PRIOR TO EXCAVATION IS REQUIRED BY CALIFORNIA STATE LAW. FAILURE

WAIT UNTIL THE UTILITY COMPANY EITHER MARKS ITS PIPELINES AND INDICATES PIPE MATERIAL AND DIAMETER - OR ADVISES YOU THE AREA IS CLEAR OF ITS PIPES BEFORE YOU START DIGGING.

USE ONLY HAND TOOLS WITHIN 24 INCHES OF EACH MARKED UTILITY LINE TO DETERMINE THE EXACT LOCATIONS OF ALL LINES BEFORE USING ANY POWER EXCAVATION EQUIPMENT IN THE AREA. MEASURE THE 24 INCHES FROM THE INDICATED OUTSIDE DIAMETER ON EACH SIDE OF THE PIPE.

INFILTRATION TESTING DATA (FROM SOILS REPORT)

Pacific
Materials
Laboratory
of Santa Barbara, Inc.

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Phone: (805) 964-8801
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E-mail: pml@pml.sbcocal.com

September 30, 2019
Lab No: 128437-2
File No: 19-15044-2

Ema Schloh and Alexa Newman
Email: alexaschloh@gmail.com

SUBJECT: Infiltration Tests
820 Alston Road
Santa Barbara, California

Dear Mr. Schloh:

In accordance with your request, infiltration tests were performed at the locations shown on Plate 1. Four (4) test pits were excavated to depths of 1 to 3 feet. Soil samples obtained from the pits were tested to determine the soil type. The soil types are silty sand, clayey silt and sand, silt and sand, and silty sand. The test results are provided in Appendix A.

Percolation tests were performed by placing a 12-inch-deep water head in each pit. The water was allowed to soak into the soil overnight. The next day, a 6-inch-deep water head was placed in each pit and the water surface was measured to determine the water surface drop in inches per hour. The infiltration rates are reported in the table below.

TEST PIT NO.	DEPTH (feet)	PERCOLATION RATE (inches/hour)	INFILTRATION RATE* (inches/hour)
P-1	3.0	0.500	0.2
P-2	3.0	3.625	1.3
P-3	3.0	3.000	1.1
P-4	1.0	3.375	1.2

* Infiltration Rate calculated from Percolation Rate using the Porchet Method

Based on the City of Santa Barbara Storm Water BMP Guidance Manual for Post-Construction Stormwater Management, Chapter 3 Site Soil Infiltration Assessment, Section 3.4 Infiltration Tests, sites considered amenable to an infiltration BMP must have an infiltration rate

September 30, 2019

-2-

Lab No: 128437-2
File No: 19-15044-2

between 0.05¹ and 2.4 inches/hour. Based on the test results, Test Pit Nos. 1 through 4 resulted in an amenable infiltration rate. It should be noted the test labeled P-1 was 3 feet deep and it is anticipated about 2 to 3 feet of soil will be removed at this location for the new driveway. Therefore, this test is for determining the infiltration rate of the subgrade soil of the future driveway.

The infiltration tests were supplemented by two (2) borings in an attempt to extend to a depth of 15 feet below the present ground surface in order to comply with the requirement of excavations extending to a depth of 11 feet below the bottom of the proposed infiltration chambers. However, the geologic conditions in this area consist of numerous sandstone boulders in the subsurface soil layers and the two attempts met with auger rejection at a depth of 2 to 5 feet. Within our file system we were able to find a record of two (2) borings performed about 2,300 feet to the southeast at a lower elevation. One (1) of the borings met refusal at a depth of 13 feet due to the sandstone boulders, but the other was able to penetrate to a depth of 28 feet and no groundwater was found. The exploratory borings are presented graphically in Appendix B.

If you have any questions concerning this matter, please do not hesitate to call. Thank you for the opportunity of providing this service.

Respectfully submitted,

PACIFIC MATERIALS LABORATORY, INC.

Ronald J. Pike, C. E. 42788

RJP:rcr

cc: Ema Schloh and Alexa Newman, Email: alexaschloh@gmail.com

¹ Per Santa Barbara City Creeks Division, the lower limit infiltration rate was intended to be changed to 0.05 in./hr. in the July 2013 revision of the Santa Barbara City Storm Water BMP Guidance Manual, but somehow this change was missed as the revision received its final approval. The July 2013 revision actually reads 0.5 in./hr., but the Santa Barbara City Creeks Division utilizes 0.05 in./hr. as the lower limit infiltration rate in its review of Tier 3 BMP systems. The intent of the change was to attain filtration of a minimum of 1 inch of storm water in a 24-hour period, which 0.05 in./hr. would achieve.

Pacific Materials Laboratory of Santa Barbara, Inc.

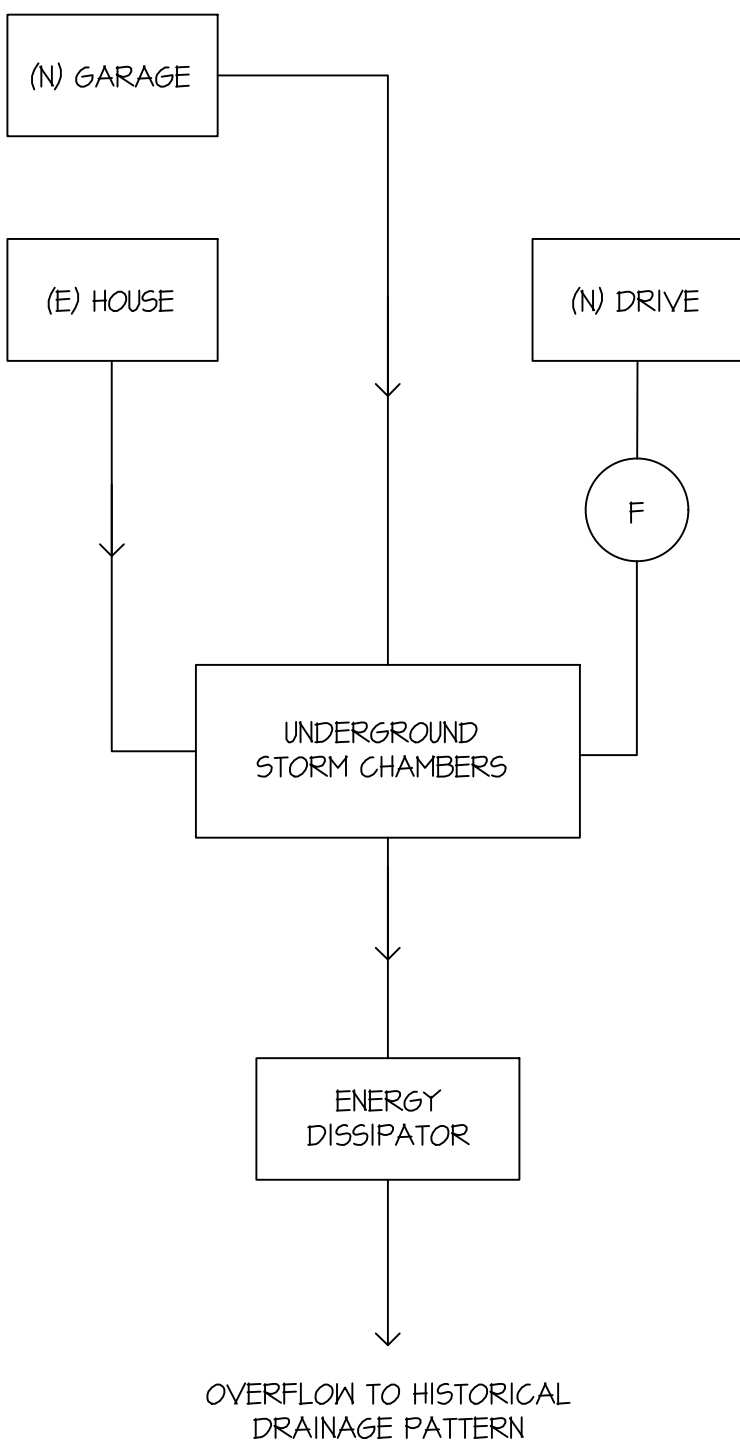
STORM WATER MANAGEMENT STUDY

THE FOLLOWING INFORMATION IS BASED ON COUNTY STORM WATER BMP GUIDANCE MANUAL & GRADING PLAN BY MIKE GONES, DATED DEC, 2019.

- PROJECT IS HILLSIDE RESIDENTIAL 5500 SF NEW OR REPLACED IMPERVIOUS SURFACE THEREFORE TIER 3
- SITE ASSESSMENT
 - HILLSIDE
 - UNNAMED, MONTECITO
 - TYPE SOIL D PER SWMP MAP SILTY SAND
 - SITE SLOPES 5-18%
 - NO GROUND WATER ANTICIPATED
 - NO FLOOD HAZARD
- POLLUTANTS OF CONCERN:

TRASH	- NOT AN ISSUE, PROPERTY LINE IS FENCED
NUTRIENTS	- USE INFILTRATION
BACTERIA	- NOT AN ISSUE CONNECTED TO PUBLIC SEWER
SEDIMENT	- NOT AN ISSUE OTHER THAN FROM DURING CONSTRUCTION (EROSION CONTROL PLAN WILL BE PREPARED)
HYDROCARBON	- (E) DRIVEWAY RUNOFF COLLECTED AND TRANSMITTED TO BIORETENTION PLANTER
METAL	- NOT AN ISSUE FOR RESIDENTIAL PROJECT
PESTICIDE	- NO CHANGE IN LANDSCAPE
- SOILS REPORT: SOIL TYPE: SILTY SAND
- SITE DESIGN BMP OPTIONS:
(E) RUNOFF PATTERNS TO BE HONORED. MINIMAL GRADING TO RESPECT (E) CONTOURS & TREES.
- BASIC BMP'S - TIER 3, SEE STORM WATER RUNOFF BMP'S.
- STORM WATER BMP OPTION SELECTED UNDER GROUND STORM CHAMBERS.
- AREA STUDY: DOES NOT INCLUDE RIGHT OF WAY
HARD SURFACING UNDER ROOF NOT INCLUDED.

A. IMPERVIOUS AREAS (SQ. FT.)	(E)	PROPOSED	CHANGE
1. ROOF AREA (OH+2.5')	3551	4334	+782
2. PATIO/WALKWAY	347	378	+19
3. DRIVEWAY	1645	718	-927
A. 4. SUB-TOTAL	5643	5435	-214
B. PERVIOUS (SQ. FT.)	(E)	PROPOSED	CHANGE
1. WOOD DECK	342	342	0
2. LANDSCAPE	18645	18404	+214
B. 3. SUB-TOTAL	19087	19301	+214
TOTAL A4 + B4	24736	24736	0



Project proposes reduction in impervious area. ∴ Volume Reduction requirements do not apply.

Water Quality Treatment Requirements: Treat one-inch 24 hr design storm for entire site.
Vol_{req} = impervious area of entire site x 1.0 in/12 in/ft
= 5435 x 1.0/12 = 452.9 cu. ft.

BMP Design: Underground Storm Chambers
Use Cultec 280 Chamber Vol/unit = 64.5 cu.ft
No. of units 452.9 = 7.02
64.5
Use 7 units

STAMP

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CIVIL ENGINEER

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NEWMAN RESIDENCE

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SANTA BARBARA, CA 93108

Drawings by EG

DATE: 12/18/2019

REVISIONS:

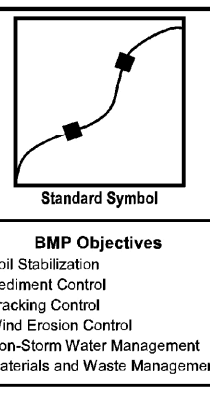
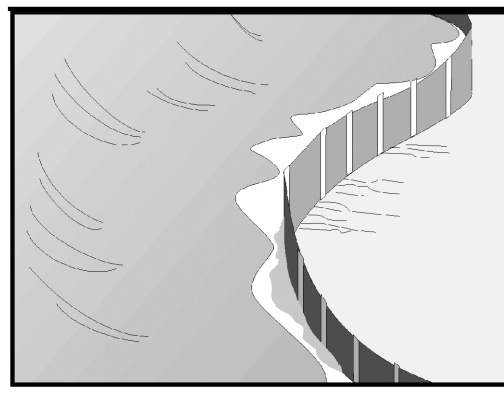
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SHEET 3 of 5

Silt Fence

SC-1



Definition and Purpose
A silt fence is a temporary linear sediment barrier of permeable fabric designed to intercept and slow the flow of sediment-laden sheet flow runoff. Silt fences allow sediment to settle from runoff before water leaves the construction site.

Appropriate Applications

- Below the toe of exposed and erodible slopes.
- Down-slope of exposed soil areas.
- Around temporary stockpiles.
- Along streams and channels.
- Along the perimeter of a project.

Limitations

- Not effective unless trenched and keyed in.
- Not intended for use as mid-slope protection on slopes greater than 1:4 (V:H).
- Must be maintained.
- Must be removed and disposed of.
- Don't use below slopes subject to creep, slumping, or landslides.
- Don't use in streams, channels, drain inlets, or anywhere flow is concentrated.
- Don't use silt fences to divert flow.

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Construction Site Best Management Practices Manual
March 1, 2003

Section 4
Silt Fence SC-1
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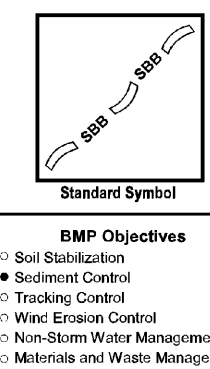
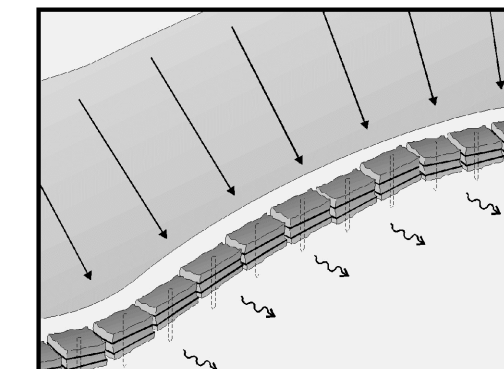
BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES:

- ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES OR RIND.
- STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.
- FUELS, OILS, SOLVENTS AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM.
- EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS MUST BE MADE TO RETAIN CONCRETE WASTES ON SITE UNTIL THEY CAN BE DISPOSED OF AS A SOLID WASTE.
- TRASH AND CONSTRUCTION RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND.
- SEDIMENTS AND OTHER MATERIAL MAY NOT BE TRACED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEEPED UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS.
- ANY SLOPES WITH DISTURBED SOILS OR DEMANDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER.

2 SILT FENCE N.T.S. 1 BEST MANAGEMENT PRACTICES

Straw Bale Barrier

SC-9



Definition and Purpose
A straw bale barrier is a temporary linear sediment barrier consisting of straw bales, designed to intercept and slow sediment-laden sheet flow runoff. Straw bale barriers allow sediment to settle from runoff before water leaves the construction site.

Appropriate Applications

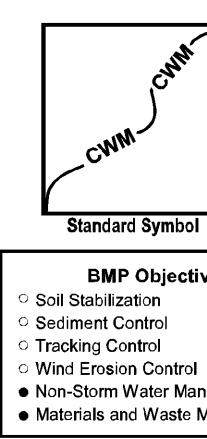
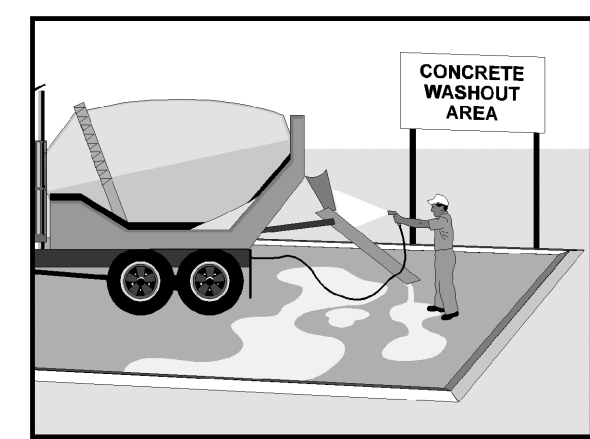
- This BMP may be implemented on a project-by-project basis in addition to other BMPs when determined necessary and feasible by the Resident Engineer (RE).
- Along the perimeter of a site.
- Along streams and channels.
- Below the toe of exposed and erodible slopes.
- Down slope of exposed soil areas.
- Around stockpiles.
- Across minor swales or ditches with small catchments.
- Around above grade type temporary concrete washouts (See BMP WM-8, "Concrete Waste Management").
- Parallel to a roadway to keep sediment off paved areas.

California Storm Water Quality Handbooks
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March 1, 2003

Section 4
Straw Bale Barrier SC-9
1 of 5

Concrete Waste Management

WM-8



Definition and Purpose
These are procedures and practices that are designed to minimize or eliminate the discharge of concrete waste materials to the storm drain systems or watercourses.

Appropriate Applications

- Concrete waste management procedures and practices are implemented on construction projects where concrete is used as a construction material or where concrete dust and debris result from demolition activities.
- Where slurries containing portland cement concrete (PCC) or asphalt concrete (AC) are generated, such as from sawcutting, coring, grinding, grooving, and hydro-concrete demolition.
- Where concrete trucks and other concrete-coated equipment are washed on site, when approved by the Resident Engineer (RE). See also NS-8, "Vehicle and Equipment Cleaning."
- Where mortar-mixing stations exist.

Limitations
None identified.

Standards and Specifications

Education

- educate employees, subcontractors, and suppliers on the concrete waste management techniques described herein.
- The Contractor's Water Pollution Control Manager (WPCM) shall oversee and enforce concrete waste management procedures.

Concrete Slurry Wastes

- PCC and AC waste shall not be allowed to enter storm drains or watercourses.

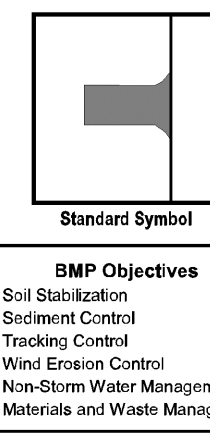
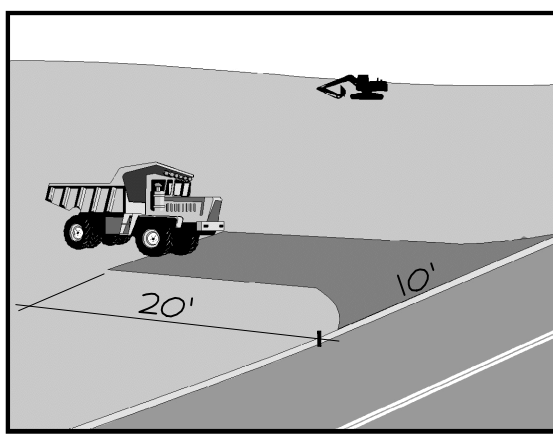
California Storm Water Quality Handbooks
Construction Site Best Management Practices Manual
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Section 8
Concrete Waste Management WM-8
1 of 7

4 STRAW BALE N.T.S. 3 CONCRETE WASHOUT AREA N.T.S.

Stabilized Construction Entrance/Exit

TC-1



Definition and Purpose
A stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.

Appropriate Applications

- Use at construction sites:
 - Where dirt or mud can be tracked onto public roads.
 - Adjacent to water bodies.
 - Where poor soils are encountered.
 - Where dust is a problem during dry weather conditions.
- This BMP may be implemented on a project-by-project basis in addition to other BMPs when determined necessary and feasible by the Resident Engineer (RE).

Limitations
Site conditions will dictate design and need.

Standards and Specifications

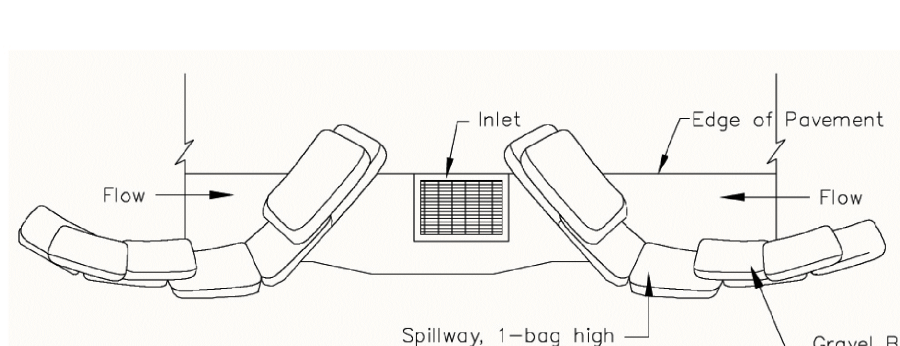
- Limit the points of entrance/exit to the construction site.
- Limit speed of vehicles to control dust.
- Properly grade each construction entrance/exit to prevent runoff from leaving the construction site.
- Route runoff from stabilized entrances/exits through a sediment-trapping device before discharge.
- Design stabilized entrance/exit to support the heaviest vehicles and equipment that will use it.

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March 1, 2003

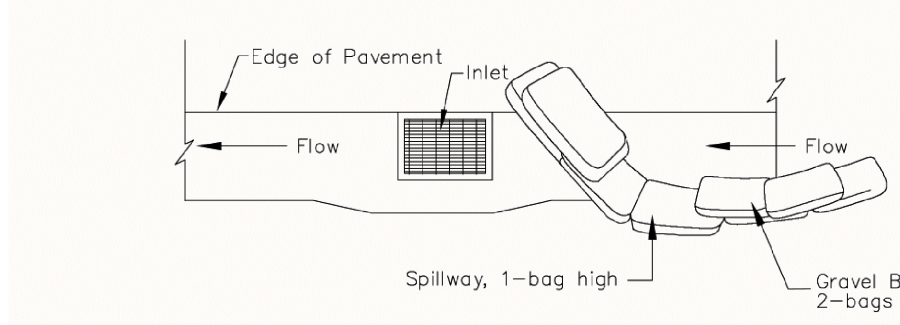
Section 6
Stabilized Construction Entrance/Exit TC-1
1 of 4

Storm Drain Inlet Protection

SC-10



TYPICAL PROTECTION FOR INLET WITH OPPOSING FLOW DIRECTIONS



TYPICAL PROTECTION FOR INLET WITH SINGLE FLOW DIRECTION

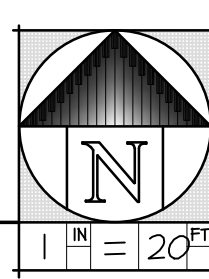
NOTES:

- intended for short-term use.
- Use to inhibit non-storm water flow.
- Allow for proper maintenance and cleanup.
- Bags must be removed after adjacent operation is completed.
- Not applicable in areas with high silts and clays without filter fabric.

California Storm Water Quality Handbooks
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Section 6
Storm Drain Inlet Protection SC-10
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6 CONSTRUCTION ENTRANCE N.T.S. 5 INLET PROTECTION N.T.S.



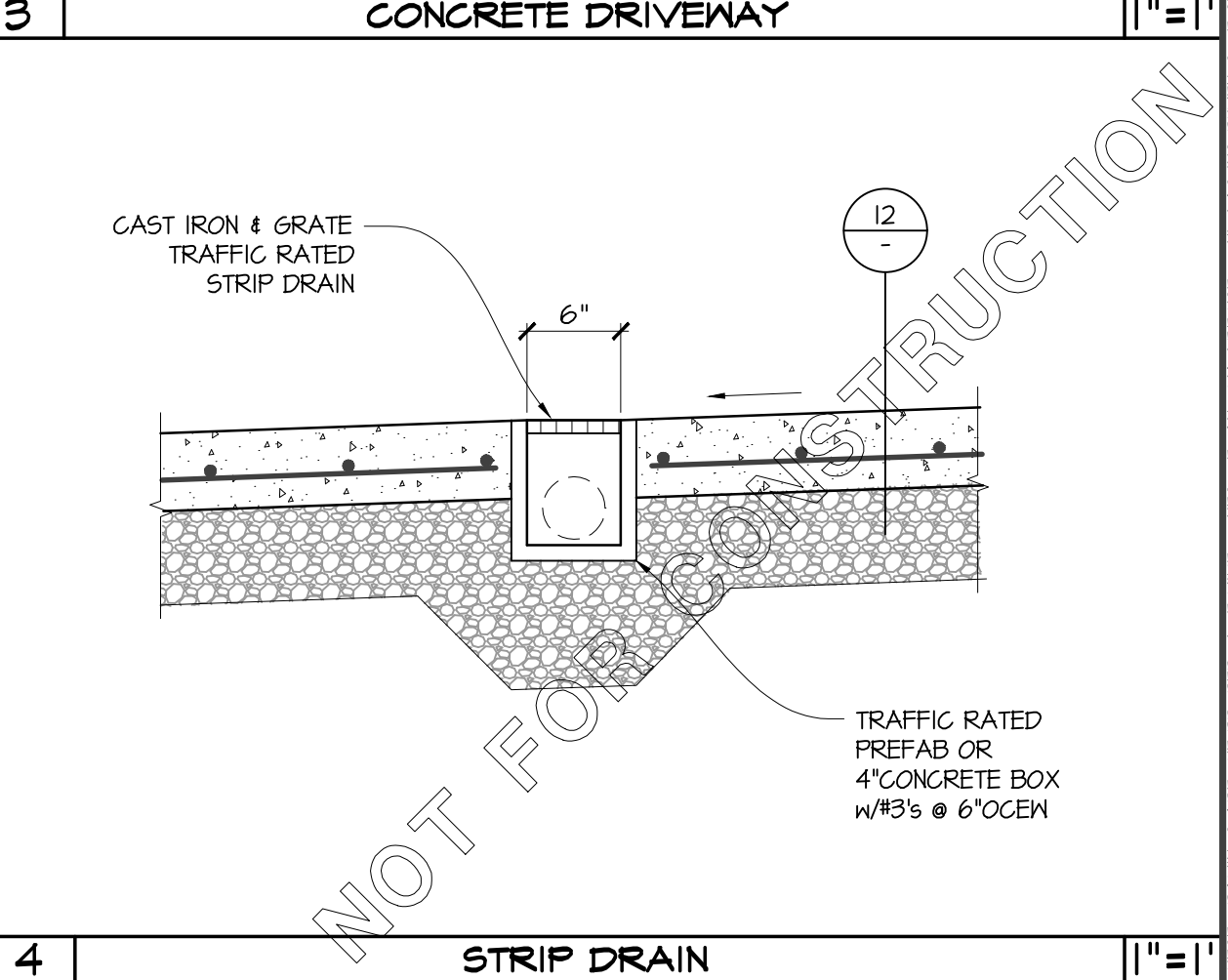
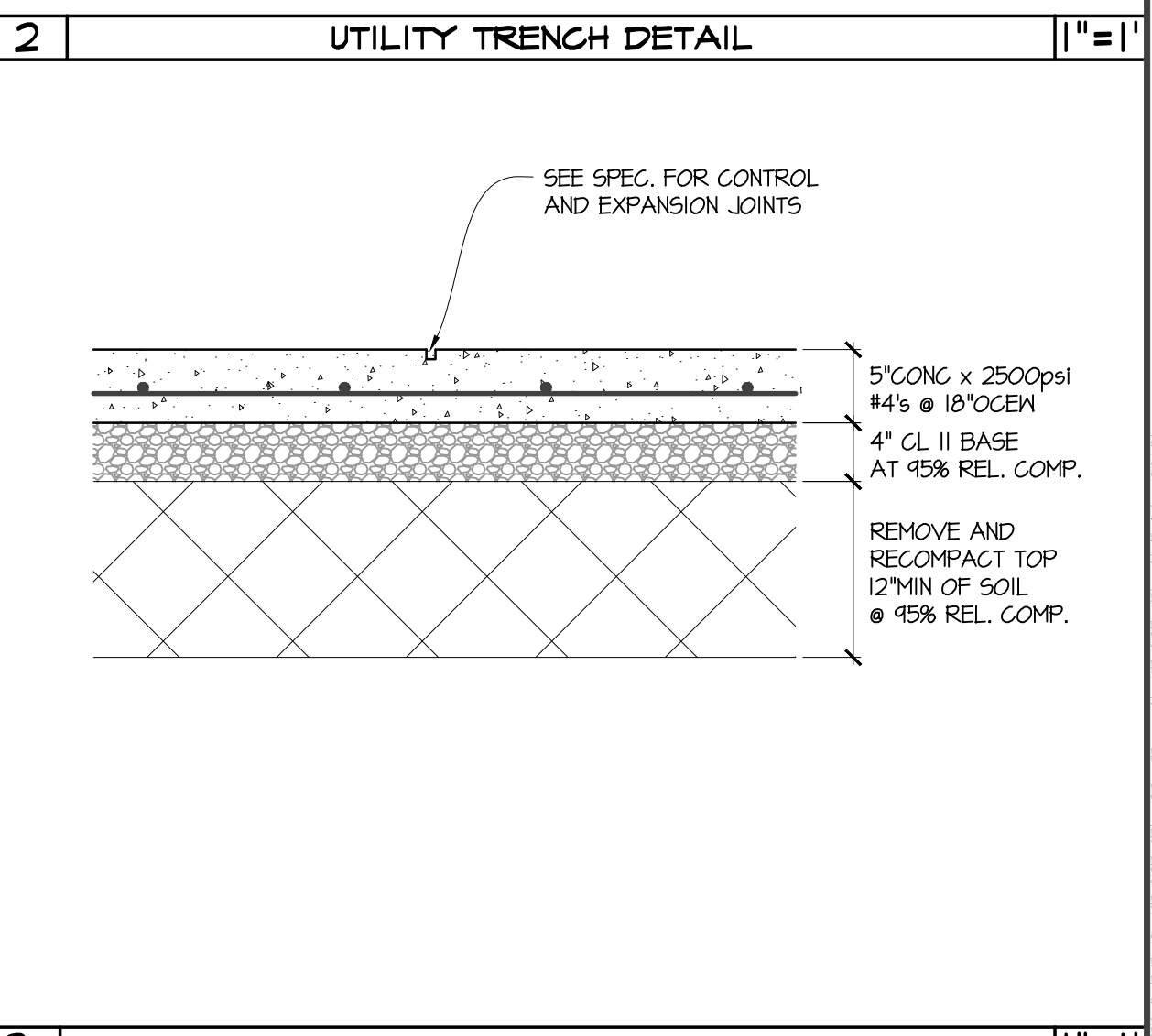
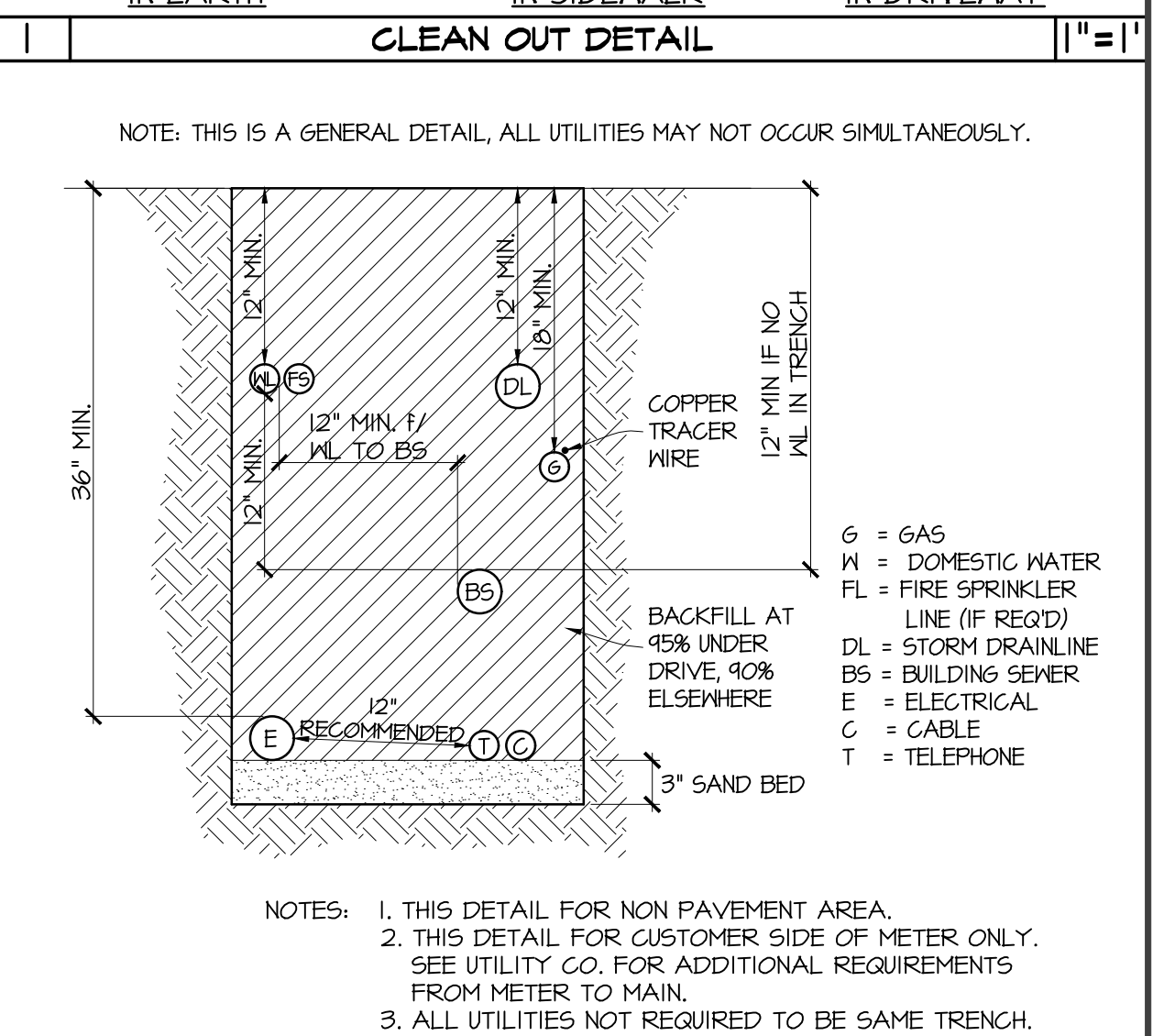
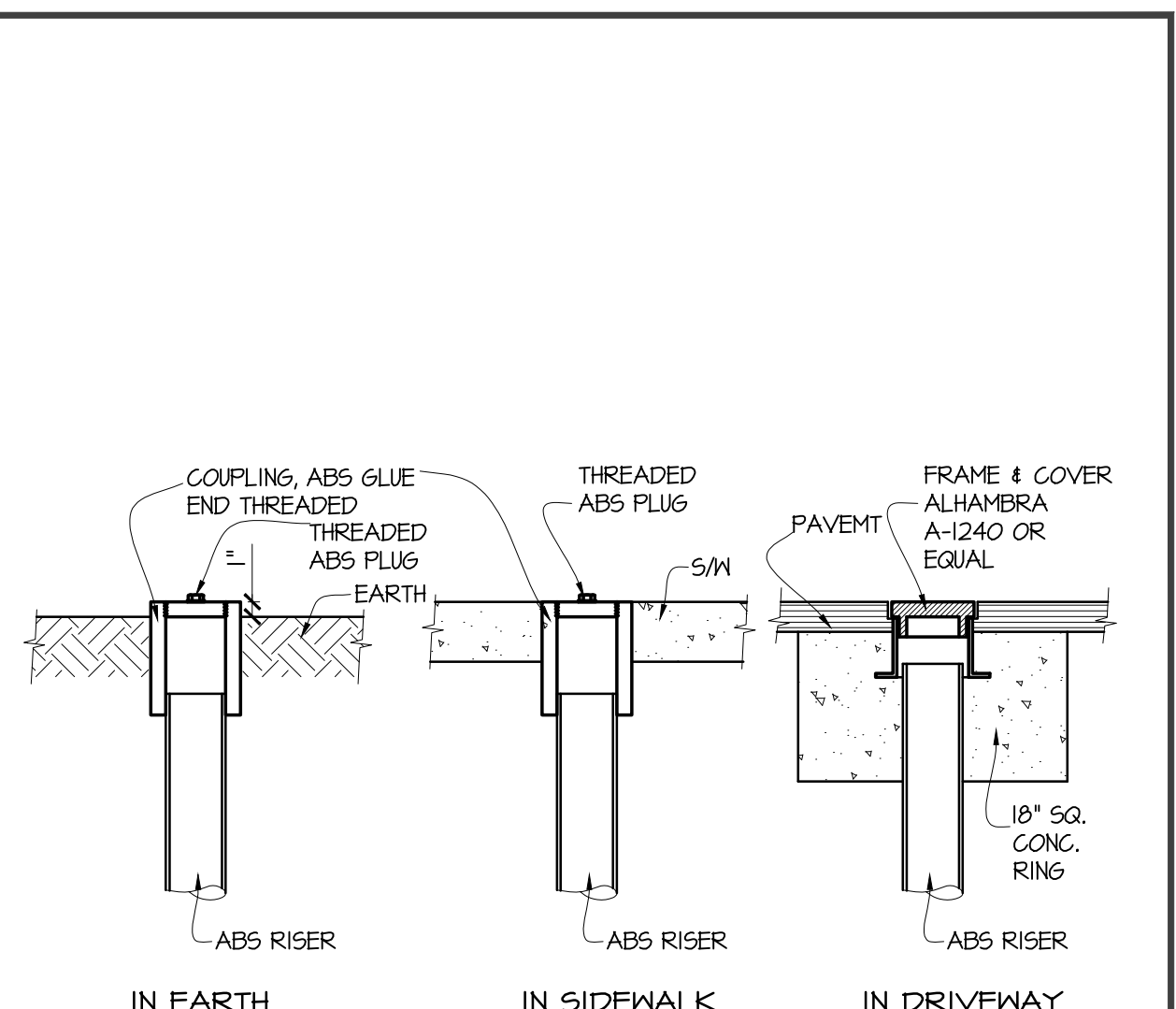
EROSION CONTROL PLAN

STAMP

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SANTA BARBARA, CA 93108

Drawings by EG
DATE: 12/18/2014
REVISIONS:
JOB No: 18645
C3.1
SHEET 4 of 5



STRUCTURAL SPECIFICATIONS

4010 GENERAL REQUIREMENTS

- 4011 DISCREPANCIES: The general contractor shall verify/coordinate all dimensions and conditions shown on the drawings and shall report all discrepancies to the engineer before proceeding with the work.
- 4012 CODE: Unless noted otherwise in the drawings, all workmanship and materials shall be performed in accordance with the 2016 California Building Code, 2016 California Residential Code and local ordinances.
- 4013 PREFABRICATED MATERIALS: Where prefabricated materials/assemblies are specified, the contractor shall make provisions in the building framework to accommodate the architectural and structural requirements of these materials/assemblies.
- 4015 SPECIAL INSPECTION: The general contractor shall coordinate special inspection and testing with a certified testing and inspection laboratory. All special inspectors shall be appropriately licensed. Fees for special inspection and testing shall be paid by the owner unless reinspection and retesting is required. Reinspection and retesting shall be paid by the general contractor.
- 4017 SOILS REPORT: The following soils report was prepared for this project: Preliminary Geotechnical Investigation by Pacific Materials Lab Oct. 31, 2019.
- 4018 WATERPROOFING: The structural drawing and details are not intended to show all flashing or waterproofing that may be required to make the structure waterproof. The contractor is responsible to review and determine details of waterproofing.
- 4019 CONSTRUCTION DETAIL: The drawings are intended to show or reference all details necessary to construct the proposed work. The contractor shall review the drawings and determine prior to commencement of construction if details or clarification of information is necessary. The engineer shall be given sufficient time to provide any additional information prior to construction.
- 4020 PROTECTION OF FACILITIES: The contractor shall be responsible for the protection of all on and off site structures, streets, utilities and landscaping.
- 4021 SHORINGS AND BRACING: The contractor shall be responsible for all excavation including shoring and protection of adjacent property, structures, streets and utilities. The contractor shall be responsible for all safety precautions and for all means, techniques and procedures required for the contractors to perform their work, including but not limited to shoring, scaffolding, underpinning, temporary to retaining of excavations and any erection and bracing. The contractor shall adequately shore all existing construction for which the support is removed, until all new supports are in place.
- 4023 COORDINATION: The contractor shall coordinate all structural work with the architectural, landscape, civil, mechanical and electrical drawings and notify the engineer of any discrepancies before proceeding with any work.
- 4027 UTILITY LOCATION: Locate, identify, protect and maintain existing water, gas, sewer, irrigation and storm drain lines, lighting, power and telephone conduits and wires, and all other existing surface or subsurface structures.

4050 CONCRETE

- 4051 FOUNDATIONS: Shall be conventional spread footings.
- 4053 FORMWORK: Shall be sized and selected as required to provide the necessary strength to confine the concrete during placement and curing. Forms shall be tight, level and plumb. Forms for walls, columns, pilasters and the like shall be undisturbed a minimum of 7 days. Forms for slabs, girders, beams, retaining walls and the like shall be undisturbed for a minimum of 14 days.
- 4054 REBAR PLACEMENT: Placement of reinforcing steel shall be in accordance with ACI requirements.
- 4055 REBAR GRADE: Reinforcing steel shall conform to ASTM A615 grade 60 for #5 bars and larger and grade 40 for #4 bars and smaller.
- 4056 REBAR LAPPING: Lapping of reinforcing steel shall be lapped a minimum of 40 diameters, unless shown otherwise, and securely wired together. Stagger splices in adjacent bars by the length of the splices.
- 4057 SLEEVES: Shall be provided for openings in concrete elements before placing concrete. Locations of sleeves for pipes and for pipes intended to be cast thru concrete, and the specific details are shown shall be located so as not to reduce strength of concrete. In no case pipe diameter, greater than conduits, in a slab 4-1/2" thick or less. Conduits buried in a concrete slab shall not have an outside diameter greater than 1/3 the slab thickness nor be placed below the bottom reinforcing steel or over top reinforcing steel. Conduits may be embedded in walls only if the outside diameter does not exceed 1/3 the wall thickness, are spaced no closer than 3 diameters on centers, and do not impair the strength of the structure. All locations shall be subject to the review of the engineer.
- 4058 ANCHORAGE: All anchor bolts, reinforcing steel, dowels, inserts, etc. shall be well secured in position prior to placing concrete. All anchors in contact with pressure treated lumber shall be hot dipped galvanized (HDG) or stainless steel.
- 4059 VIBRATION: All concrete shall be vibrated as it is being placed with electrically operated vibrating equipment.
- 4060 EXPANSION JOINTS: Expansion joints for exterior flatwork shall be installed at exterior locations whenever concrete is restricted from moving such as where it abuts other concrete surfaces, curbs, etc. These joints shall be premolded, elastic, resilient material 1/2" thick and shall be sealed to prevent water intrusion.
- 4061 CONTROL JOINTS: Saw cuts or tooled joints shall be used to form crack control joints in non-structural slabs on grade. Saw cuts shall be made as soon as the slab will support the saw the saw will not dislodge the concrete, but before 6 hours after finishing of the concrete. An early entry saw such as the "soft-cut" saw by Soft-Cut International (800-776-3328) is recommended. Control joints at exterior flatwork shall be placed at 15-20 ft intervals and shall be 3/4" to 1" deep. Consult with owner for finish appearance.
- 4062 CURING: The contractor shall determine curing methods to provide complete and careful curing of all concrete work. Immediately after finishing slabs, cover with curing paper, "Slackrall" paper or sheet plastics, lap edges a minimum of 6" and seal together. A sprayed on curing compound may be used if approved in advance by the engineer and contractor. Liquid curing compound shall be permitted according to ASTM C309; using NR, Meadows "Vocomp 20/25", Master Builders "Mastercure IV", or equal, complying with Rule 113 of the South Coast Air Quality Management District and Federal Air Quality Regulation 40 CFR 52.254.
- 4063 STRENGTH: Concrete shall have a 28 days minimum compressive strength as follows:
- | | |
|--|----------|
| D. Conventional footings | 2500 psi |
| E. Non-structural flatwork/ slabs on grade | 2500 psi |
- 4064 SPECIAL INSPECTION AND TESTING: For foundation work that is required per CBC GI 17 for the following items:
- | |
|---|
| E. Foundation excavation. The soils engineer shall inspect and approve all footing excavation prior to 6" shotcrete concrete. |
|---|
- 4065 COORDINATION: The contractor shall coordinate special inspection and testing with a certified testing and inspection laboratory. All special inspectors shall be appropriately licensed. Fees for special inspection and testing shall be paid by the owner unless reinspection and retesting is required. Reinspection and retesting shall be paid by the general contractor.

- 4078 IMBEDMENTS: Verify with architectural, mechanical and electrical drawings the location of all items embedded in or attached to concrete.
- 4080 CONSTRUCTION JOINTS: Location of construction joints shall be approved by the engineer prior to construction.
- 4082 ADMIXTURE: No calcium chloride based admixtures are to be used. All admixtures are to be approved by the structural engineer. When concrete is poured in marine environment, add calcium nitrite corrosion inhibitor (i.e. DCl by NR, Grade 4 Co.) conforming to ASTM 444 Type C in the amount of 4 gallons per cubic yard.
- 4088 CLEARANCES: For joists, beams, girders and columns shall be to face of stirrups or ties. Unless otherwise noted, concrete coverage for reinforcing bars to face of bar shall be as follows:
- | | |
|--|----|
| A. Concrete in contact with earth, unfomed | 3" |
| B. Concrete in contact with earth, formed | 2" |

- 4084 DOWELING: All walls and columns shall be dowelled into footings. Walls, beams or slabs with bars of the same size and spacing as the vertical reinforcement above. Use a 40 bar diameter lap unless otherwise noted. The all slabs on grade to intersecting walls and/or footings with the same size dowels and spacing as the slab reinforcing extend dowels 32" into slab and 6" into wall with an additional 6" hook on the end.
- 4090 PENETRATIONS: No sleeves or chases shall be placed in beams, slabs, walls and columns, except those shown on the plans. Contractor shall obtain prior approval for installation of any additional sleeves or chases. All plumbing, electrical and mechanical openings shall be sleeved in members before placing concrete with reinforcing bent not cut around sleeves. Coring is not allowed unless prior approval is obtained from the structural engineer.
- 4091 EMBEDDED ITEMS: Conduit placed in a concrete slab shall not have an outside diameter greater than 1/4 the thickness of the slab. Conduit shall not be embedded in a slab that is less than 3-1/2" thick, unless slab is locally thickened. Minimum clear distance between conduits shall be six inches.
- 4092 PORTLAND CEMENT: ASTM C-10 Type II unless noted otherwise.
- 4093 CEMENT SUBSTITUTES: Portland cement substitute shall not exceed 25% of the required cement weight and shall be approved in advance by the project engineer based on mix design submitted by the contractor/concrete supplier.
- 4094 AGGREGATES: ASTM C33, except local aggregates of proven suitability may be used when acceptable by architect.
- 4095 VAPOR RETARDER: Conform to ASTM E1745, minimum 10 mil thick. The material shall have a reinforced non-woven grid suspended in a permanently flexible adhesive media. The material shall have vapor permeance of not more than 0.07 perms when tested according to ASTM E96, Method A. One or both sides shall be white. The material shall contain UV inhibitors and thermal stabilizers. Provide pressure sensitive tape, manufactured by manufacturer of vapor retarder, single or double sided as appropriate, for joining sheets, repairing punctures and for bonding vapor retarder to projections through the membrane. Vapor retarder shall be one of the following:

- 4096 A. Griffolyn T105, manufactured by Reef Industries, Inc., P.O. Box 150250, Houston, TX 77275 (800-231-6074), fax (713-441-2055).
- 4096 B. Tiera-Skirm 124B, manufactured by Raven Industries, P.O. Box 5101, Sioux Falls, SD 57111 (800-635-3456), fax (605-331-0333).
- 4096 C. S1600 wrap 30 mil class A vapor barrier
- 4097 EXPANSION JOINT FILLER: In accordance with ASTM D1752, premolded, Type I, non-extruding tube, constructed of cellular neoprene sponge rubber, fully compressible with recovery rate of minimum 95%, NR, Meadows "Sealtight Cork Expansion Joint", Grace Construction Material Service "Standard Cork Expansion Joint Filler, Code 4323", or equal.
- 4098 CONSTRUCTION JOINT MATERIALS: NR, Meadows "Sealtight Keyway", "Key-Kola" or "Kwik-Joint", of profiles indicated.
- 4099 BONDING AGENT: "Weld-Crete", manufactured by Larsen Products Co., 3200 Preston Road, Suite 100, Houston, TX 77058 (800-633-6668), NR, Meadows "Introlac" or Master Builders "Concresive", or equal.

4150 WOOD

- 4151 GRADES AND STRESSES: All structural lumber shall be Douglas Fir Larch (north) with the following minimum grades:
- | | |
|--------|--------------------|
| Joists | Construction Grade |
| Beams | Grade No. 2 |
| Posts | Grade No. 1 |
- 4152 GRADE MARK: All lumber shall be grade marked and conform to the grading rules of the West Coast Lumber Inspection Bureau.
- 4153 ALTERNATE LUMBER: If alternate lumber specie or recycled wood is used, the lumber shall be stress graded by an appropriately licensed engineer and reported in writing to the project engineer to verify required lumber sizes.
- 4154 PLYWOOD: Shall be a standard grade or better, exterior type plywood, conforming to PS1-45 Group I and shall be grade stamped on each sheet. Plywood thickness and nailing shall be as shown on drawings. Minimum dimensions of any plywood sheet shall be 24" and the minimum area shall be 8 square feet.
- 4155 PARALLAM LUMBER: Structural parallam lumber shall comply with NES report No. NES-48) or CGM; Report No. 11164-R. Parallam PS1 shall be manufactured from strands of wood fiber in a continuous process with all strands oriented to the length of the member and then fed into a press in the desired layup pattern. All members are to be free of finger joints, scarfs or mechanical connections in full length members. Adhesives shall be of the waterproof type conforming to the requirements of ASTM D-2254.
- 4156 GLU LAM LUMBER: Structural glu-lam lumber shall conform to AITC 117-16, "Standard Specifications for Structural Glued Laminated Timber" with standard camber, exterior glue, industrial grade, combination 24F-V4 with a minimum Fb=2400 psi, unless noted otherwise on the drawings. An AITC certified compliance for glue laminated wood members shall be given to the building Inspector and approved prior to erection.
- 4157 MEMBERS EXPOSED TO VIEW: Select for best appearance available in grade specified, free of heart center rings, checks and splits. Grade stamps exposed to view will not be acceptable. Remove all stains or gouges prior to installation.

- 4158 SILL PLATES: Sill plates and other wood members in contact with concrete or masonry shall be Douglas Fir pressure impregnated with an approved preservative.
- 4159 WEATHER EXPOSURE: All exposed wood (other than items 4157) shall be sealed and painted to prevent moisture damage.
- 4161 NAILING: Nailing shall be in accordance with CBC Table 2304.10.1. All nails in contact with pressure treated lumber shall be hot dipped galvanized.
- 4162 MACHINE APPLIED NAILING: Using machine nailing is subject to a satisfactory job site demonstration for a project and the approval of the Architect or structural engineer and the division of the State Architect. The approval is subject to continued satisfactory performance. Machine nailing is not allowable in 5/16" plywood. If the nail penetrates the outer ply by more than 1/8" the nail is not acceptable. The nail or the minimum allowable edge distances are not maintained, the performance will be deemed unsatisfactory and machine nailing will be discontinued.

- 4163 METAL CONNECTORS: All metal connectors shall be by Simpson Co. or equal. Connectors exposed to weather or pressure treated lumber shall be hot dipped galvanized.
- 4164 LAG BOLTS: Lag bolts shall be predrilled as recommended by CBC standards and screwed into place.
- 4165 WASHERS: Provide washers under all bolt, nut and screw heads as follows: (For all anchor bolts at sill plates see 4184)
- | Bolt Size | Plate Size |
|-----------|-------------------------|
| 1/2" | 3/16" x 2" x 2" |
| 5/8" | 1/4" x 2 1/2" x 2 1/2" |
| 3/4" | 5/16" x 2 3/4" x 2 3/4" |
| 5/16" | 3/8" x 3" x 3" |
| 1" | 3/8" x 3 1/2" x 3 1/2" |

- 4166 SHOT PINS: Anchorage of sill plates for non-bearing stud walls on concrete shall be 0.45" minimum diameter, which shall penetrate into concrete a minimum of 1 1/2". Power driven anchors shall be placed 16" on center and 6" from corners and splices. Non-bearing walls on curbs shall be anchored with anchor bolts.
- 4167 BLOCKING: All 2x joists and rafters shall be solid blocked at points of bearing. Flood cross-bridging not less than 2" by 3" nominal, metal cross-bridging of equal strength, or solid blocking shall be placed between joists where the joists or rafter span exceeds eight (8 feet). Cross-bridging or blocking may be omitted for roof and ceiling joists 8" and less in depth, unless noted otherwise on the plans.
- 4168 FIRE STOPS: Shall be provided at the following locations:
- | | |
|--|--|
| A. In concealed spaces of stud walls and partitions, including turned spaces, at the ceiling and floor levels and at 10 foot intervals along the length of the wall. | |
| B. At all interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings and cove ceilings. | |
| C. In concealed spaces between stair stringers at the top and bottom of the run and between studs along and in line with the run of stairs if the walls under the stairs are unfinished. | |
| D. In openings around vents, pipes, ducts, chimneys, fireplaces and similar openings which afford a passage for fire at ceiling and floor levels, with noncombustible materials. | |

- 4169 LOAD TRANSFER: All posts shall have full bearing to supporting beams or foundations.
- 4170 CUTTINGS AND NOTCHING: In exterior walls and bearing partitions, any wood stud may be cut or notched to a depth not exceeding 25% of its width. Cutting or notching of studs to a depth not greater than 40% of the width of the stud is permitted in non-bearing partitions supporting no loads other than the weight of the partition.
- 4171 BORED HOLES: A hole not greater in diameter than 40% of the stud width may be bored in any wood stud. Bored holes not greater than 60% of the width of the studs are permitted in non-bearing partitions or in any wall where each bored stud is doubled, providing not more than two such successive doubled studs are so bored. In no case shall the edge of the bored hole be nearer than 5/8" to the edge of the stud. Bored holes shall not be located at the same section of the stud as a cut or notch.
- 4172 LAYOUT: Contractor shall coordinate layout of framing member with other trades to avoid cutting, drilling, notching, etc. of framing members.
- 4177 PLYWOOD JOINTS: Where shown, provide solid blocking for roof sheathing joints not located on supports. In lieu of solid blocking, use "Plyclats". Each bundle of cleats shall be grade stamped by an approved testing agency. Span cleats between the framing members with maximum 1/4" clearance at ends. Fasten cleats to each sheet of plywood with #10 by 1 1/4" flat head wood screws spaced the same as indicated nail spacing. Add two extra nails at edges of plywood on supports, spaced not over 2" apart, with balance of edge and field nailing as indicated.

- 4179 LAGS AND WOOD SCREWS: Shall be installed in predrilled holes.
- 4183 ORIENTED STRAND BOARD (O.S.B.): May be substituted for shear panel as long as it is A.F.P.A. rated and equal of better grade and approved in advance by the project engineer. Do not use for roof or floor diaphragms.
- 4184 ANCHOR BOLTS: Anchorage of sill plates for bearing walls and exterior walls shall be with 5/8" diameter anchor bolts with a minimum 1" embedment and minimum 1/4" x 3" square plate washer 6" on center with a bolt 8" or less from the end and each edge, unless noted otherwise on the drawings.
- 4186 PRESSURE TREATMENT: Sill plates and other wood members required to be pressure treated to protect against rot, decay and termites, shall be pressure treated with ACG Preserve as manufactured by CSI, One Woodlawn Green, Suite 250, Charlotte, NC 28211 or approved equal.
- 4187 BEARINGS ON CONCRETE: Bottom 6" of posts that bear on concrete or concrete block shall be treated with a safe preservative that does not discolor the wood.

4200 STRUCTURAL STEEL

- 4202 GRADE: Structural steel shall conform to the following:
- | Shape | Material/Grade |
|--|----------------|
| I. Misc. plates, channels angles, etc. | ASTM A36 |
- 4203 BOLTS: All bolts, anchor bolts and threaded studs shall conform to ASTM A307 unless noted otherwise on the plans. Bolt holes shall be drilled a maximum of 1/16" larger than the bolt diameter.
- 4204 FABRICATION: Structural steel framing components shall be cut squarely or as required to fit neatly against abutting members. Members shall be held firmly in place until properly fastened. Joining of members shall be done by fillet, plug, butt or seam welding unless specified otherwise. Dissimilar structural components shall be attached by welding, screws or bolting.
- 4205 WELDING: All welding shall conform to AWS standard D11 with E 7018 electrodes.
- 4206 PRIMING: All structural steel shall be shop primed with 2 1/2 to 4 mils dry film thickness, unless galvanized.
- 4207 WEATHER EXPOSURE: All structural steel exposed to weather shall be galvanized, painted or specially coated as noted in the drawings.
- 4208 PAINTING: Primer and finish coats (where required by weather exposure) shall be supplied by same manufacturer. Approved products are listed below:
- | MANUFACTURER | PRIME COAT | ACRYLIC FINISH COAT |
|-----------------|---------------------|--------------------------------|
| Ameron | Dynatrust | Amercoat 2104 |
| Valspar | Modulink T (3-G-17) | Water-Acrylic Enamel 44 series |
| Porter Coatings | Znlock 371 | Acrylic Industrial |
- 4210 ERECTION: Steel shall be accurately plumbed, aligned, leveled, and shall be braced as required for safety, accuracy of placement, and to carry loads to which the structure may be subjected.

4450 SPECIAL INSPECTIONS

- 4451 WORK REQUIRING SPECIAL INSPECTION: The following construction work shall be inspected by a building department approved special inspector, employed by the owner, as required by CBC section 1701:
- *C Indicates continuous inspection is required.
*P Indicates periodic inspections are required.
- | INSPECTION TYPE/DESCRIPTION | C | P |
|---|---|---|
| A. Salls | | |
| 1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity. | X | |
| 2. Verify excavations are extended to proper depth and have reached proper material. | X | |
| 3. Perform classification and testing of compacted fill materials. | X | |
| 4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill. | X | |
| 5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly. | X | |
| I. Special Inspections for Seismic Resistance | | |
| 1. Inspection required for wood shear walls, shear panels, and diaphragms where the fastener spacing is less than or equal to 4" on center. | X | |
| a. Inspect field gluing operations of elements of the seismic force-resisting system. | | |
| b. Inspection required for nailing, bolting, anchoring and other fastening elements of the seismic force-resisting system. | X | |

- 4453 DUTIES OF THE SPECIAL INSPECTOR:
- A. Observe the work for conformance with the City/County approved (stamped) design drawings and specifications and applicable workmanship provisions of the CBC and program guidelines. NOTE: Shop drawings may be used only as an aid to inspection.
- B. Provide written documentation of non-conforming items and bring to the immediate attention of the contractor with a copy to the designated City Inspector. If any such item is not resolved in a timely manner or is about to be incorporated in the work, notify the Chief of Building and Safety, Senior Plan Check Engineer, Building Inspector supervisor or designated City project inspector immediately by telephone or in person and the engineer or architect.
- C. Furnish reports of tests and inspections directly to the designated City building inspector, engineer and architect of record and others as designated. These reports are to include the following:
- Describe inspections and tests made with applicable locations.
 - List all non-conforming items.
 - Indicate how non-conforming items were resolved or indicate unresolved items as applicable.
 - Itemize changes authorized by architect, engineer and Building and Safety if not included in non-conforming items.
- D. Insure that an adequate number of pre-qualified inspection personnel are on the job based on the intensity of activities, quality of work being performed and the various operations occurring as they relate to special inspection code requirements.
- E. Verify that all revisions and deviations to approved plans relative to special inspection required work are approved by Building and Safety plan review section prior to commencement of such work.
- F. Submit a final signed report to the Chief of Building and Safety stating that all items requiring special inspection and testing were fulfilled and reported and to the best of their knowledge, in conformance with the approved design drawings, specifications, approved change orders and the applicable workmanship provisions of the California Building Code. Items not in conformance, unresolved items or any discrepancies in inspection coverage (i.e. missed inspections, periodic inspections when continuous was required, etc.) shall be specifically itemized in this report.

4500 STRUCTURAL OBSERVATIONS

- 4501 SITE VISIT BY ENGINEER: The engineer has been retained to provide structural observation during the course of the project to determine if the structural construction generally conforms to the approved plans and specifications. These visits are not for complete checking of the work, that is the general contractor's responsibility.
- 4503 REQUIRED OBSERVATIONS: The general contractor shall notify the engineer at least 48 hours in advance for visits to the site to observe the following construction, prior to calling for a building inspection.
- | |
|---|
| A. Footings, when all reinforcing, anchor bolts, tie down bolts and other embeds are in place, prior to each pour of concrete. |
| B. Structural steel and wood framing when all structural steel is erected, all bracing and connections are completed, prior to covering any construction. |
- 4504 CONTRACTORS INSPECTION: Prior to requesting the engineer's visit, the contractor shall verify that all construction to be observed has been completed in accordance with the approved plans and specifications.
- 4505 REPORTS: The engineer shall submit a report to the building department after each visit with copies to the architect and contractor noting any unresolved deficiencies.
- 4506 REMEDIAL WORK: Any construction work not conforming to the approved plans and specifications must either be altered to conform to the approved or the non-conforming work must be reviewed and approved by the engineer of record. Contractor shall pay all expenses for additional engineering required.

STRUCTURAL SYMBOLS

- | | |
|-------|------------------------------|
| ABP | ALTERNATE BRACED PANEL |
| AC | ASPHALTIC CONCRETE |
| BCN | BOTTOM OF CAISSON |
| BD | BUILDING DRAIN |
| BM | BEAM |
| BN | BOUNDARY NAIL |
| BOB | BOTTOM OF BEAM |
| BOF | BOTTOM OF FOOTING |
| BOT | BOTTOM |
| BS | BUILDING SEWER |
| CB | COLUMN BASE |
| CBM | COLUMN BEAM |
| CCB | COLLAPSIBLE CARDBOARD BOX |
| CF | CALIFORNIA FRAMING |
| CJ | CEILING JOIST |
| CSN | CAISSON |
| DJ | DECK JOIST |
| DF | DOUGLAS FIR |
| DIA | DIAPHRAGM |
| DI | DRAIN INLET |
| (E) | EXISTING |
| EJ | EXPANSION JOINT |
| EN | EDGE NAIL |
| EXT | EXTERIOR |
| F2 | FOOTING NUMBER |
| FD | FRENCH DRAIN |
| FDR | FLOOR DRAIN |
| FFN | FOUNDATION |
| FF | FINISH FLOOR |
| FG | FINISH GRADE |
| FHWS | FLAT HEAD WOOD SCREW |
| FJ | FLOOR JOIST |
| FN | FIELD NAIL |
| FR | FALSE RAFTER |
| FT | FLOOR TIE |
| GB | GRADE BEAM |
| GLB | GLUE-LAM BEAM |
| GMF | GALV. METAL FLASH/G |
| GW | GYPSTUM WALLBOARD |
| HDR | HOLDOWN |
| HDR | HEADER |
| HGR | HANGER |
| HSS | HOLLOW STRUCTURAL SECTION |
| IRW | IGNITION RESISTANT WOOD |
| INT | INTERIOR |
| IP | IRON PIPE |
| KP | KING POST |
| o | OVER |
| OCE | ON CENTER EDGE |
| OCF | ON CENTER FIELD |
| OH | OVERHANG |
| OR | OUTRIGGER |
| MB | MACHINE BOLT |
| ML | MICROLAM |
| (N) | NEW |
| NIC | NOT IN CONTRACT |
| PLW | POST IN WALL |
| PWB | PARALLAM BEAM |
| P/P | PER PLAN |
| PTDF | PRESSURE TREATED DOUGLAS FIR |
| (R) | REMOVE |
| (RB1) | REFERENCE TO CALCS |
| RH | RADIANT HEAT |
| RJ | ROOF JOISTS |
| RR | ROOF RAFTER |
| RTF | RETROFIT ANCHOR-BOLT |
| SS | SELECT STRUCTURAL |
| SW | STRONG WALL |
| SWHD | STRONG WALL HOLDDOWN |
| TC | TOP OF CONCRETE |
| TCB | TOP OF CURB |
| T&G | TONGUE & GROOVE |
| TCN | TOP OF CAISSON |
| TP | TOP OF PAVEMENT |
| TOF | TOP OF FOOTING |
| TOP | TOP OF PLYWOOD |
| TOS | TOP OF SLAB |
| TS | TUBULAR STEEL |
| TSW | TOP OF STEM WALL |
| TW | TOP OF WALL |
| TYP | TYPICAL |
| UNO | UNLESS NOTED OTHERWISE |
| VR | VAPOR RETARDER |
| w/ | WITH |
| WP | WATERPROOF |

SHEET INDEX

- | | |
|-----|--|
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| S.3 | EXISTING GARAGE CONVERSION TO ADU (INCLUDED IN ADU PERMIT SET) |
| S.4 | FOUNDATION DETAILS |
| S.5 | ROOF FRAMING DETAILS |
| S.6 | STANDARD DETAILS |
| S.7 | STANDARD DETAILS |
| S.8 | STEEL STRONG WALL DETAILS |

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NEUMAN RESIDENCE

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Drawings by E6

DATE: 12/10/2019


REVISIONS:

JOB No: 19645




S.1

SHEET 1 of 8

1. ROOF COVERING: CLASS 'A' COMPOSITE ROOF.
2. ROOF DIAPHRAGM: $\frac{5}{8}$ " CDX W/8 d's @ 6"OC, 12"OCF, 6"OCBN PSL CLIPS OR BLOCK ALL EDGES.
3. PLATE HGT 9"0" ABOVE TOP OF CURB TOP PLATE ELEV 307.5.
4. ALL SLOPE 4:12.
5. PROVIDE TEMPORARY HIP/RIDGE SUPPORT UNTIL ALL FRAMING, SHEATHING, AND HARDWARE IS INSTALLED.


WALL BRACING SCHEDULE:	A.B.	Yallow	STUDS
 1/2" CDX PLYWOOD 1/8" @ 4" O.C. 1/2" O.C.F., 4" O.C.B.N	3/8"x15" AB @ 3'6" O.C	350 p/lf	2x FRAMING
SIMPSON STEEL STRONG WALL S5W 15x8-1KT	1" S5WABx36" MIN. L	1625 #	PREFAB


NOTES:


- ALL NEW EXTERIOR WALLS SHALL BE WRAPPED IN  WALL SHOWN WITH  AND PANEL LENGTH ARE CONSIDERED SHEAR PANEL.
- PROVIDE WATERPROOF PAPER OVER ALL SHEAR PANEL BEFORE SIDING.
- 2x BLOCK @ ALL EDGES.
-  LOCATION OF SIMPSON ANCHOR BOLT FOR HOLDDOWN, ON MIN DEL 2x STUD OR PIW PER PLAN U.N.O. SEE DETAIL 10/6.


1. ALL GRADING & RECOMPACTION SHALL BE COMPLETE AND CERTIFIED BY THE SOILS ENGINEER PRIOR TO EXCAVATION FOR FOOTINGS.
2. ALL FOOTINGS SHALL SET 18" IN CERTIFIED RECOMPACTED SOIL. BOTTOM SHALL BE MIN. OF 18" BELOW GRADE. SOILS ENGINEER TO APPROVE FOOTING EXCAVATION.
3. ALL WASHERS FOR A.B.'S 3"SQ x 0.224" THICK, GALV.
4. ALL HOLDDOWNS AND HARDWARE SHALL BE SET IN PLACE BY TEMPLATE PRIOR TO FOUNDATION INSPECTION.
5. CONNECT PIN TO SSN WITH 2-1/4" SDS SCREWS x 5" @ 24"OC (10 MIN).
6. FOR HOLDDOWN SEE DET. 10/5.6.
7. SEE ARCHITECT FOR ALL DIMENSIONS NOT SHOWN.


LEGEND


 (N) CONG. FOOTING


 (R) CONG. FOOTING

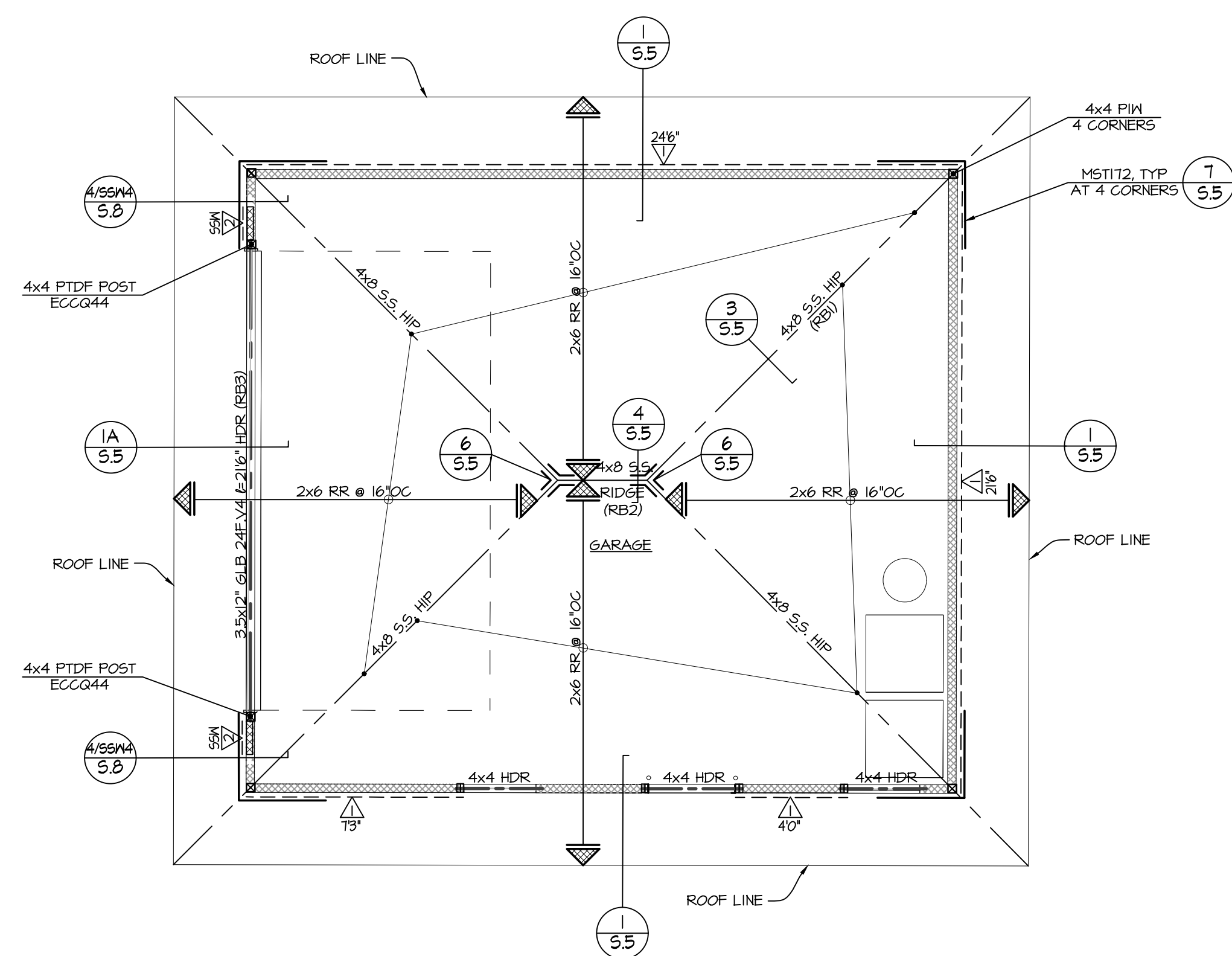
 WOOD POST

 SHEAR WALL

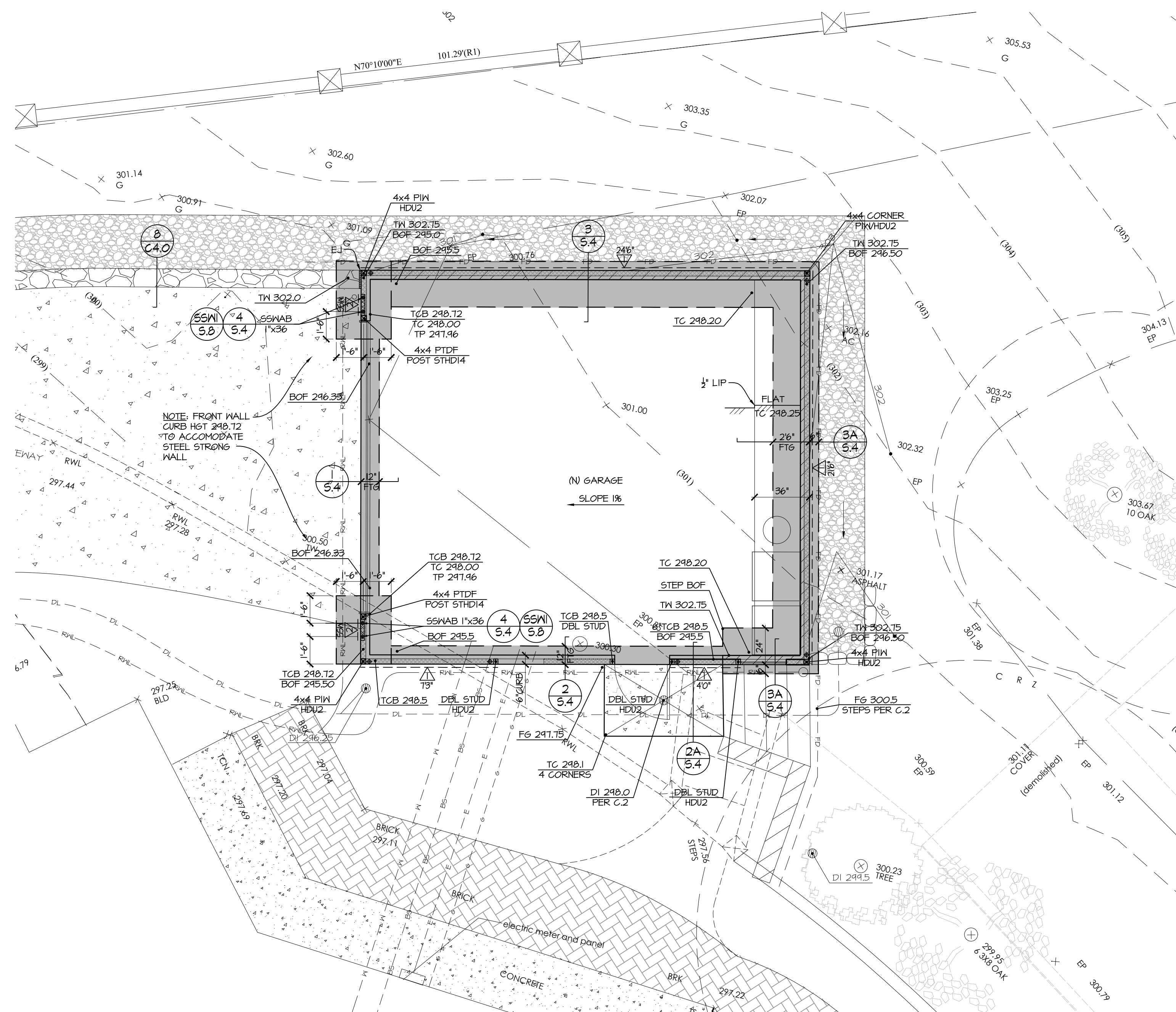
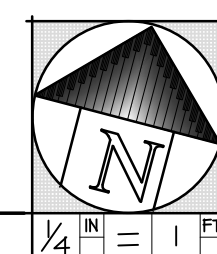
 (N) 2x6 WALL

 (N) 2x4 WALL

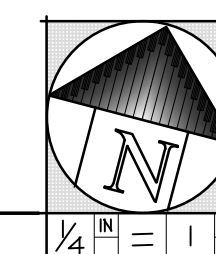
 DBL STUD/HD



ROOF FRAMING PLAN



FOUNDATION PLAN



S T A M P

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Drawings by EG

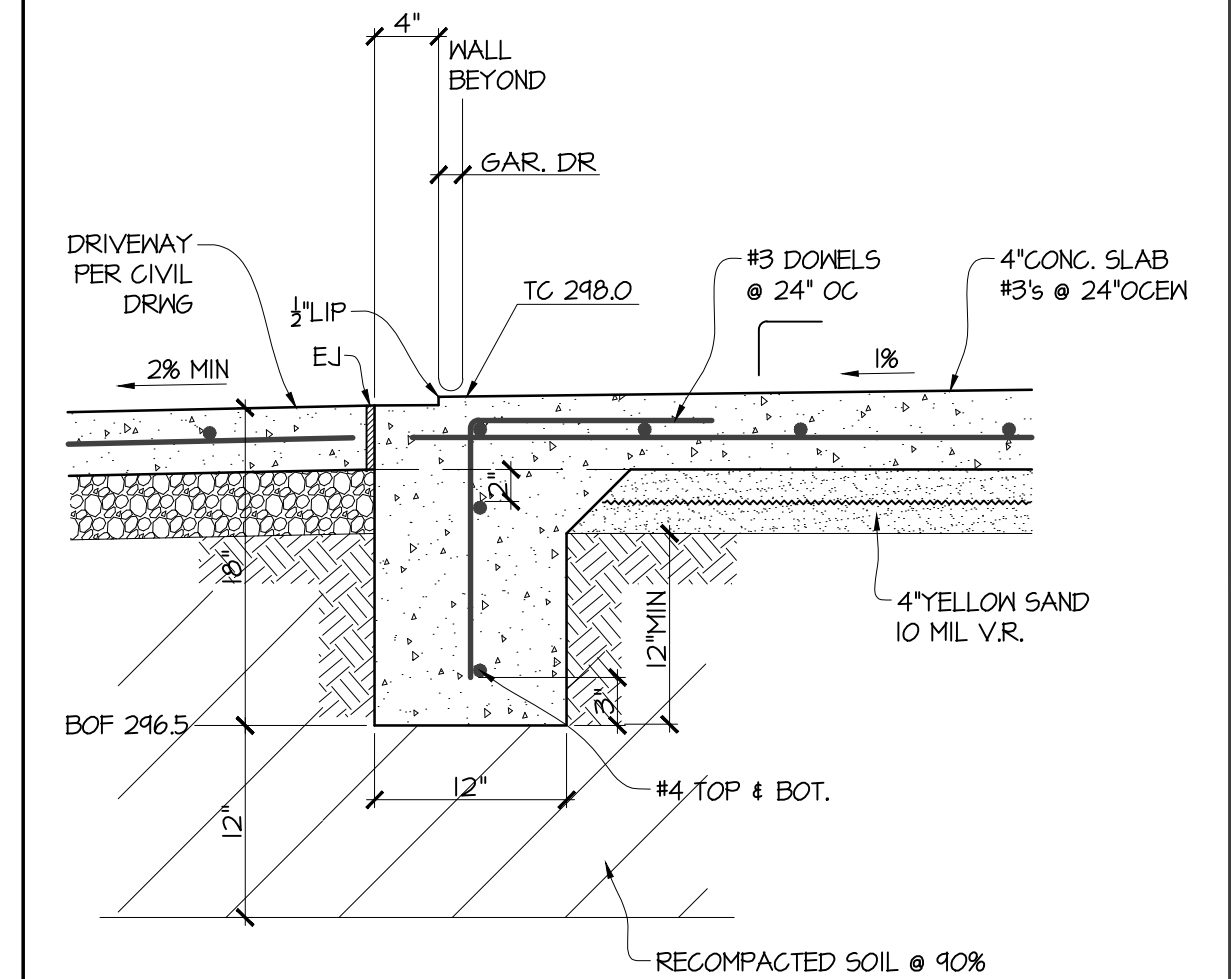
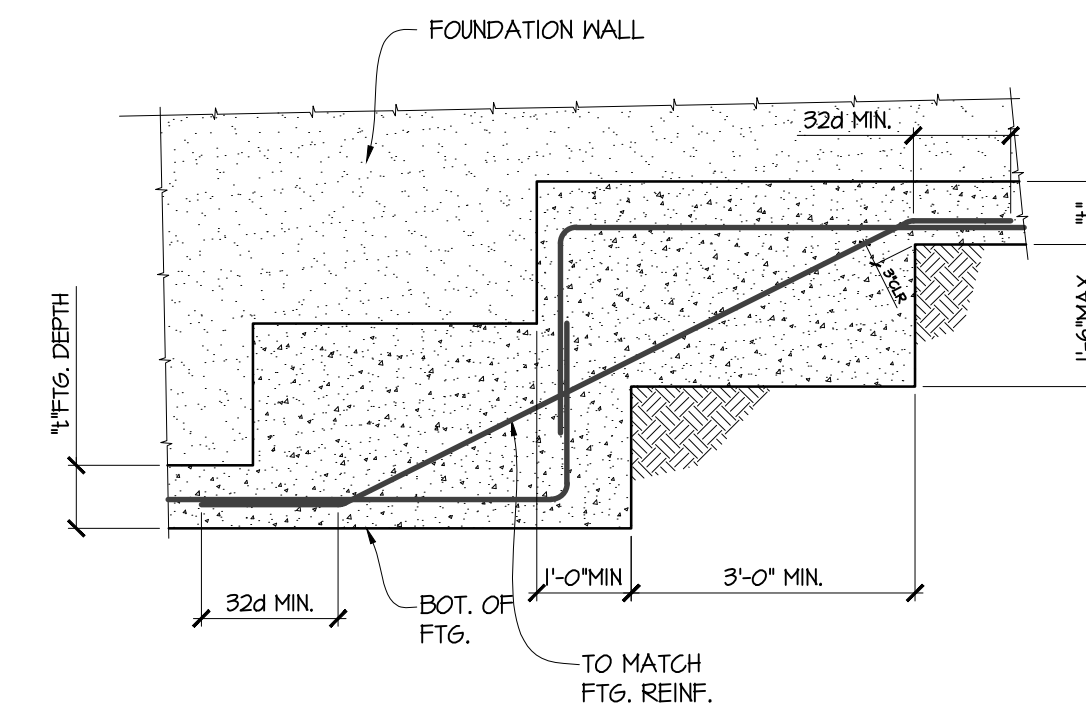
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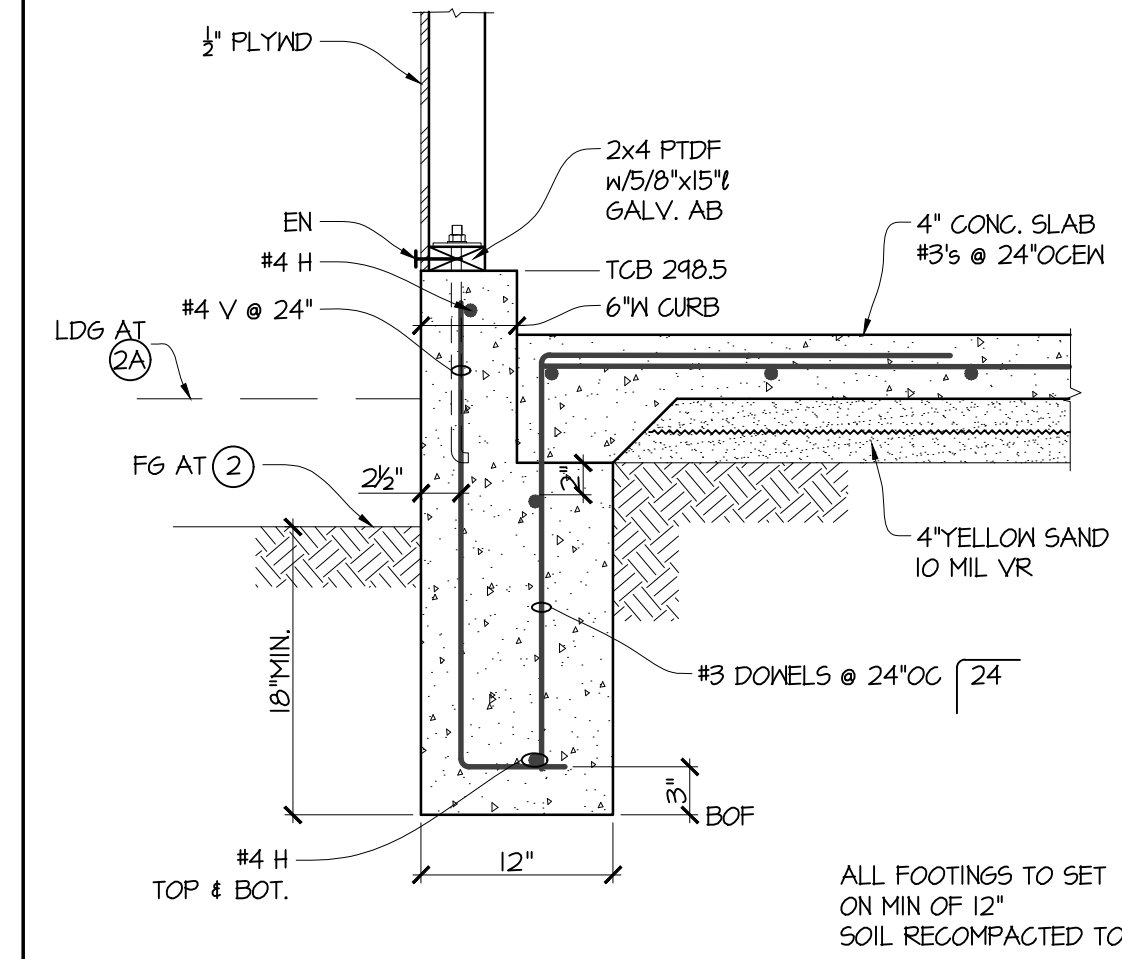


STEPPED FOOTING

1/2"-1"

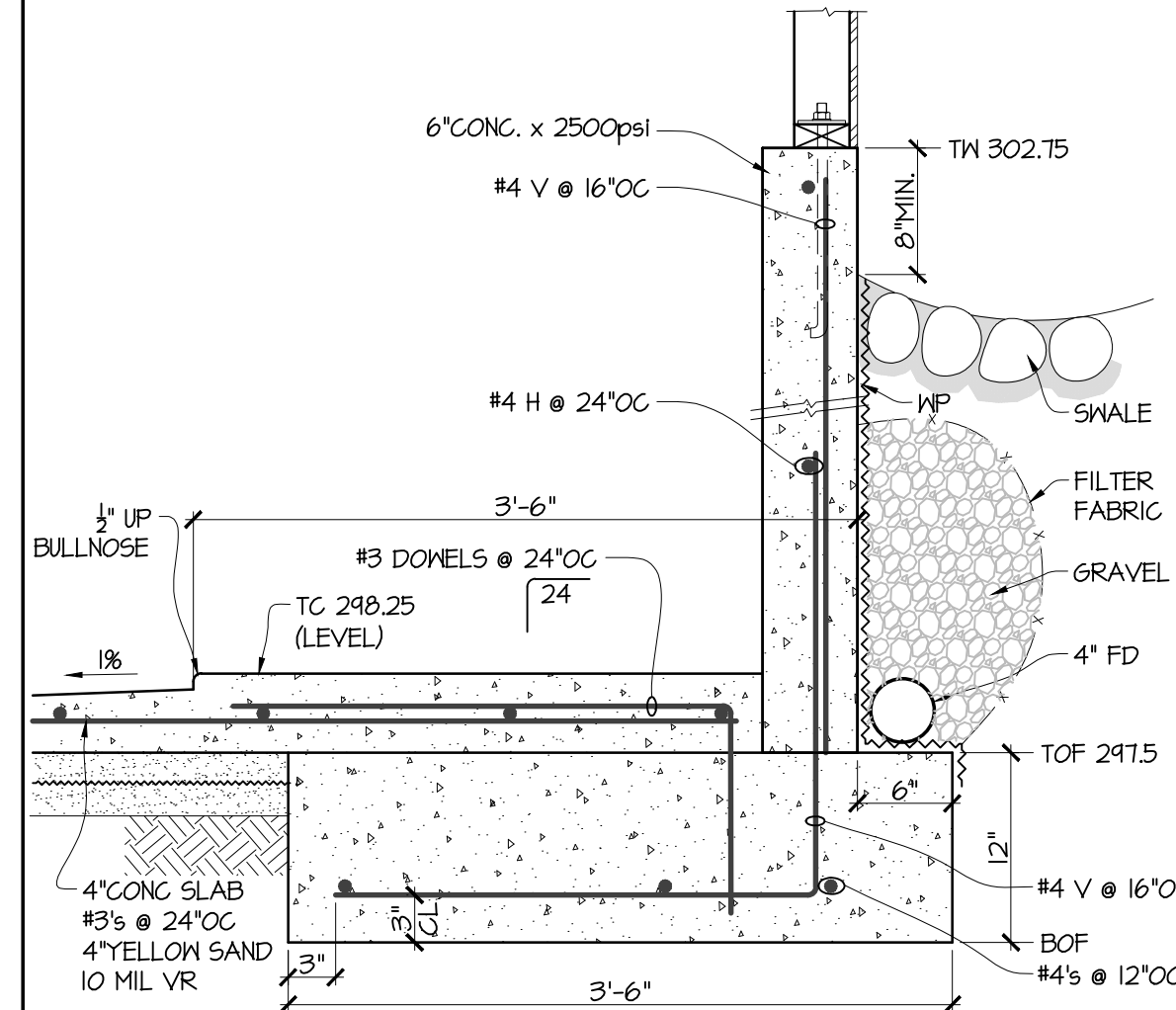
GARAGE FOOTING TIE

1"-1



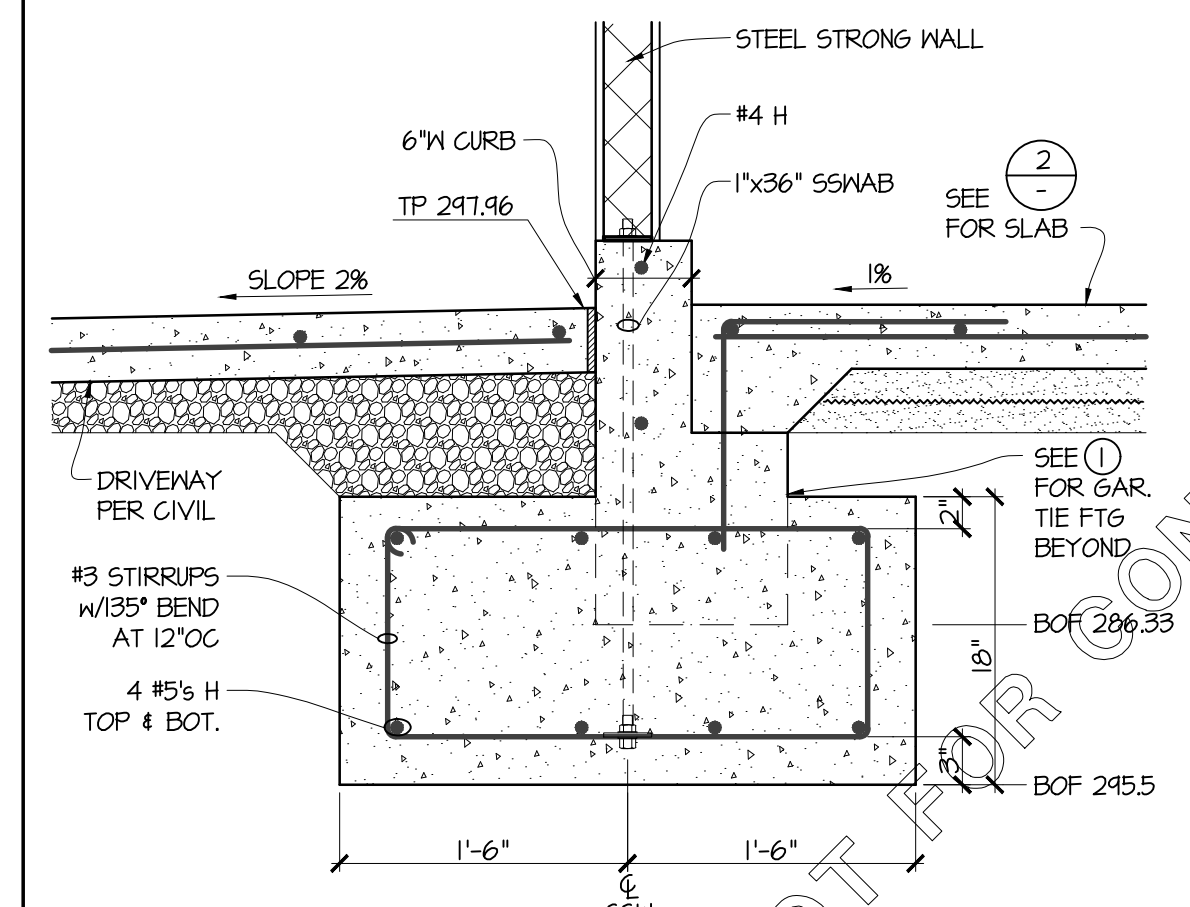
EXTERIOR FOOTING

	1"-1
--	------



GARAGE RETAINING WALL

	1"-1
--	------



STEEL STRONG WALL

	1"-1
--	------

S T A M P

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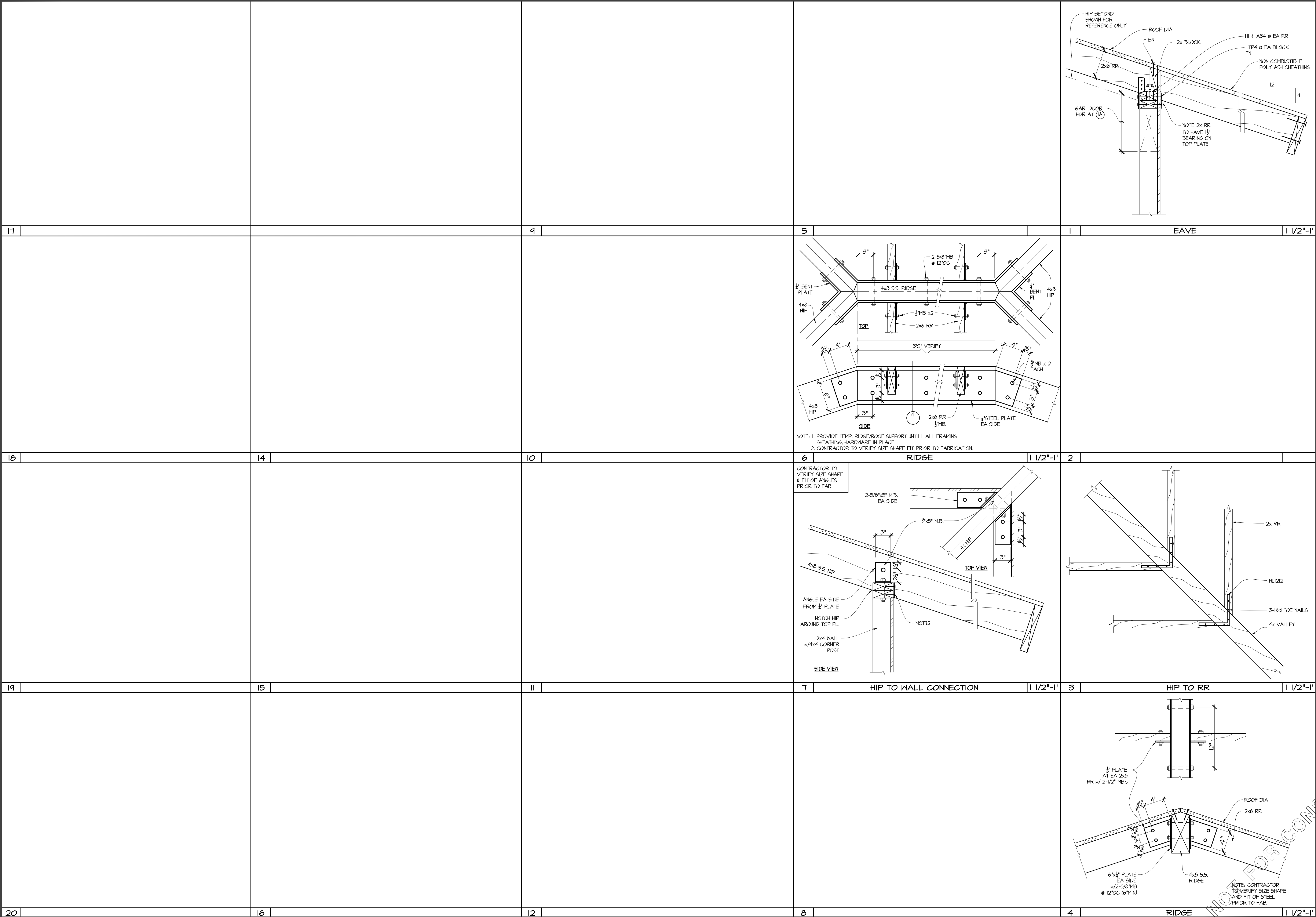
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SHEET 4 of 8



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S.5

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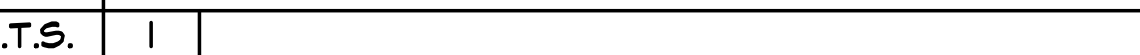
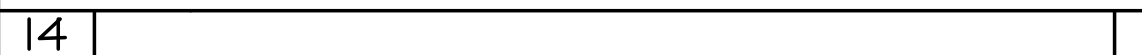
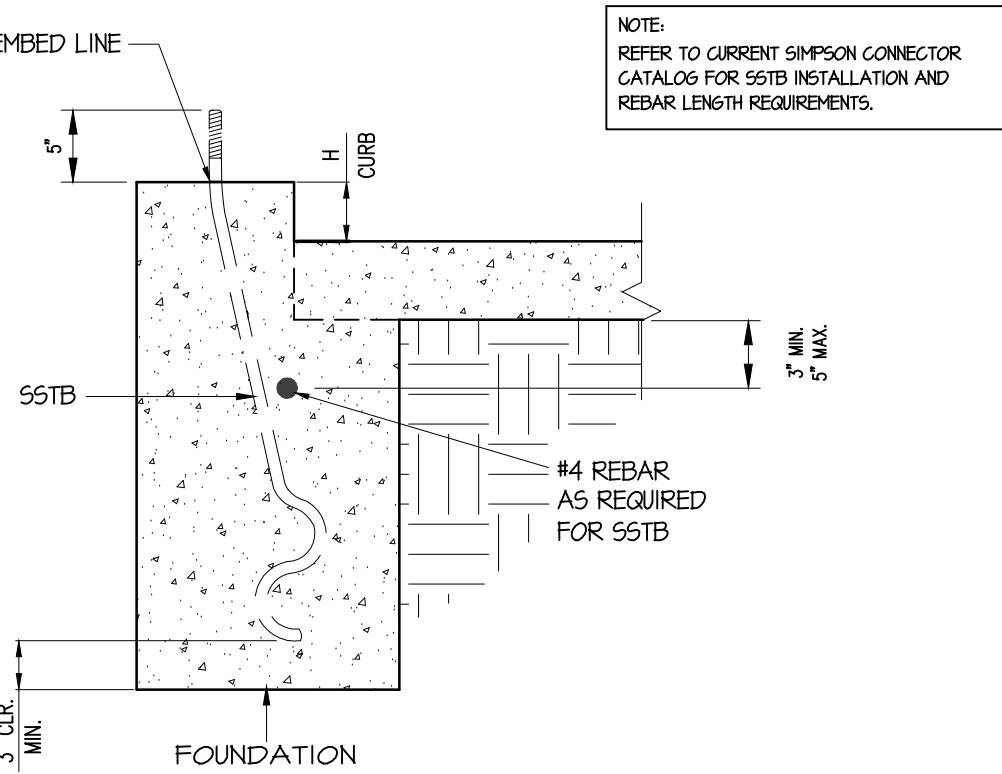


TABLE R802.3(1) FASTENING SCHEDULE			
ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER**	SPACING AND LOCATION
1	Blocking between ceiling joists or rafters to top plate	Roof 4-8d box (2") \times 0.113"; or 3-8d common (2") \times 0.131"; or 3-16d box (3") \times 0.128"; or 3-3" \times 0.131" nails	Toe nail
2	Ceiling joists to top plate	4-8d box (2") \times 0.113"; or 3-8d common (2") \times 0.131"; or 3-16d box (3") \times 0.128"; or 3-3" \times 0.131" nails	Per joist, toe nail
3	Ceiling joist not attached to parallel rafter, laps over partition (see Sections R802.3.1, R802.3.2 and Table R802.3.10)	4-8d box (2") \times 0.113"; or 3-8d common (2") \times 0.131"; or 3-16d box (3") \times 0.128"; or 3-3" \times 0.131" nails	Face nail
4	Ceiling joist attached to parallel rafter (heel joint)	Table R802.3.10	Face nail
5	Collar tie to rafter, face nail or 1/4" \times 20 ga. ridge strap to rafter	4-16d box (3") \times 0.128"; or 3-16d common (3") \times 0.148"; or 4-3" \times 0.131" nails	Face nail each rafter
6	Rafter or roof truss to plate	3-16d box made (3") \times 0.135"; or 3-16d common made (3") \times 0.148"; or 4-16d box (3") \times 0.128"; or 4-3" \times 0.131" nails	2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss
7	Roof rafters to ridge, valley or hip rafters or roof rafter to minimum 2" ridge beam	4-16d (3") \times 0.135"; or 3-16d common (3") \times 0.148"; or 4-16d box (3") \times 0.128"; or 4-3" \times 0.131" nails	Toe nail
		3-16d box 3/4" \times 0.135"; or 2-16d common (3") \times 0.148"; or 3-16d box (3") \times 0.128"; or 3-3" \times 0.131" nails	End nail
8	Stud to stud (not at braced wall panels)	wall 16d common (3") \times 0.162"	24" o.c. face nail
9	Stud to stud and abutting stud at intersecting wall corners (at braced wall panels)	16d box (3") \times 0.128"; or 3" \times 0.131" nails	16" o.c. face nail
10	Build-up header (2" to 2" header with 1/4" spacer)	16d box (3") \times 0.162"	12" o.c. face nail
11	Continuous header to stud	5-8d box (2") \times 0.113"; or 4-8d common (2") \times 0.131"; or 4-16d box (3") \times 0.128"	Toe nail
12	Top plate to top plate	16d common (3") \times 0.162"	16" o.c. face nail
13	Double top plate splice for SD/Cs A-D ₂ with seismic braced wall line spacing $\leq 25'$ Double top plate splice SD/Cs D ₃ , D ₄ , or D ₅ and braced wall line spacing $\geq 25'$	8-16d common (3") \times 0.162"; or 12-16d box (3") \times 0.135"; or 12-16d box (3") \times 0.128"; or 12-3" \times 0.131" nails	Face nail on each side of end joint (minimum 24" lap splice length each side of end joint)

TABLE R802.3(1)-continued FASTENING SCHEDULE			
ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER**	SPACING AND LOCATION
14	Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d common (3") \times 0.162"	16" o.c. face nail
15	Bottom plate to joist, rim joist, band joist or blocking (at braced wall panels)	16d box (3") \times 0.135"; or 2-16d common (3") \times 0.162"; or 4-3" \times 0.131" nails	3 each 16" o.c. face nail 2 each 16" o.c. face nail 4 each 16" o.c. face nail
16	Top or bottom plate to stud	4-8d box (2") \times 0.113"; or 4-8d common (2") \times 0.131"; or 4-16d box (3") \times 0.128"; or 4-3" \times 0.131" nails	Toe nail
17	Top plates, laps at corners and intersections	3-16d box (3") \times 0.135"; or 2-16d common (3") \times 0.148"; or 3-16d box (3") \times 0.128"; or 3-3" \times 0.131" nails	End nail
18	1" \times 6" sheathing to each stud and plate	3-8d box (2") \times 0.113"; or 2-8d common (2") \times 0.131"; or 2-16d box (3") \times 0.128"; or 2 staples 1" \times 16 ga., 1 1/2" long	Face nail
19	1" \times 6" sheathing to each bearing	3-8d box (2") \times 0.113"; or 2-8d common (2") \times 0.131"; or 2-16d box (3") \times 0.128"; or 2 staples 1" \times 16 ga., 1 1/2" long	Face nail
20	1" \times 8" and wider sheathing to each bearing	3-8d box (2") \times 0.113"; or 3-8d common (2") \times 0.131"; or 3-16d box (3") \times 0.128"; or 3 staples 1" \times 16 ga., 1 1/2" long	Face nail
21	Joist to sill, top plate or girder	4-8d box (2") \times 0.113"; or 3-8d common (2") \times 0.131"; or 3-16d box (3") \times 0.128"; or 3-3" \times 0.131" nails	Toe nail
22	Rim joist, band joist or blocking to sill or top plate (roof applications also)	8d common (2") \times 0.131"; or 16d box (3") \times 0.128"; or 3" \times 0.131" nails	4" o.c. toe nail
23	1" \times 6" subfloor or less to each joist	8d common (2") \times 0.131"; or 2-8d common (2") \times 0.131"; or 3-16d box (3") \times 0.128"; or 2 staples 1" \times 16 ga., 1 1/2" long	Face nail

TABLE R802.3(1) FASTENING SCHEDULE-continued			
ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER**	SPACING AND LOCATION
24	2" subfloor to joist or girder	3-16d box (3") \times 0.135"; or 2-16d common (3") \times 0.162"	Blind and face nail
25	2" planks (plank & beam-floor & roof)	3-16d box (3") \times 0.135"; or 2-16d common (3") \times 0.162"	At each bearing, face nail
26	Band or rim joist to joist	3-16d common (3") \times 0.162" 4-10 box (3") \times 0.128"; or 4-3" \times 0.131" nails, or 4-3" \times 14 ga. staples, 1 1/2" crown	End nail
27	Build-up girders and beams, 2-inch lumber layers	20d common (4") \times 0.192"; or 10d box (3") \times 0.128"; or 3" \times 0.131" nails	24" o.c. face nail at top and bottom staggered on opposite sides
28	Ledger strip supporting joists or rafters	4-16d box (3") \times 0.135"; or 3-16d common (3") \times 0.148"; or 4-16d box (3") \times 0.128"; or 4-3" \times 0.131" nails	Face nail at ends and at each splice
29	Bracing to joist	2-10d (3") \times 0.128"	Each end, toe nail
ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER**	SPACING OF FASTENERS (inches)
30	Wood structural panels, exterior, roof and interior wall sheathing to framing (see Table R802.3(2) for wood structural panel exterior wall sheathing to wall framing)	6d common (2") \times 0.113" nail (subfloor, wall) 8d common (2") \times 0.131" nail (roof)	6 12
31	1/2" \times 1/4"	16d common nail (2") \times 0.131"	6 12
32	1 1/4" \times 1/4"	10d common (3") \times 0.148" nail; or 8d (2") \times 0.131" deformed nail	6 12
33	1/2" structural cellular sheathing	1 1/2" galvanized roofing nail, 1/2" head diameter, or 1" crown staple 16 ga., 1 1/2" long	3 6
34	1/2" structural cellular sheathing	1 1/2" galvanized roofing nail, 1/2" head diameter, or 1" crown staple 16 ga., 1 1/2" long	3 6
35	1/2" gypsum sheathing	1 1/2" galvanized roofing nail; staple galvanized, 1 1/2" long, 1 1/4" screws, Type W or S	7 7
36	1/2" gypsum sheathing	1 1/2" galvanized roofing nail; staple galvanized, 1 1/2" long, 1 1/4" screws, Type W or S	7 7
37	1/4" and less	Wood structural panels, combination subfloor-sheathing to framing	6 12
38	1/4" \times 1"	16d deformed (2") \times 0.131" nail; or 8d common (2") \times 0.113" nail	6 12
39	1 1/4" \times 1 1/4"	10d common (3") \times 0.148" nail; or 8d deformed (2") \times 0.131" nail	6 12

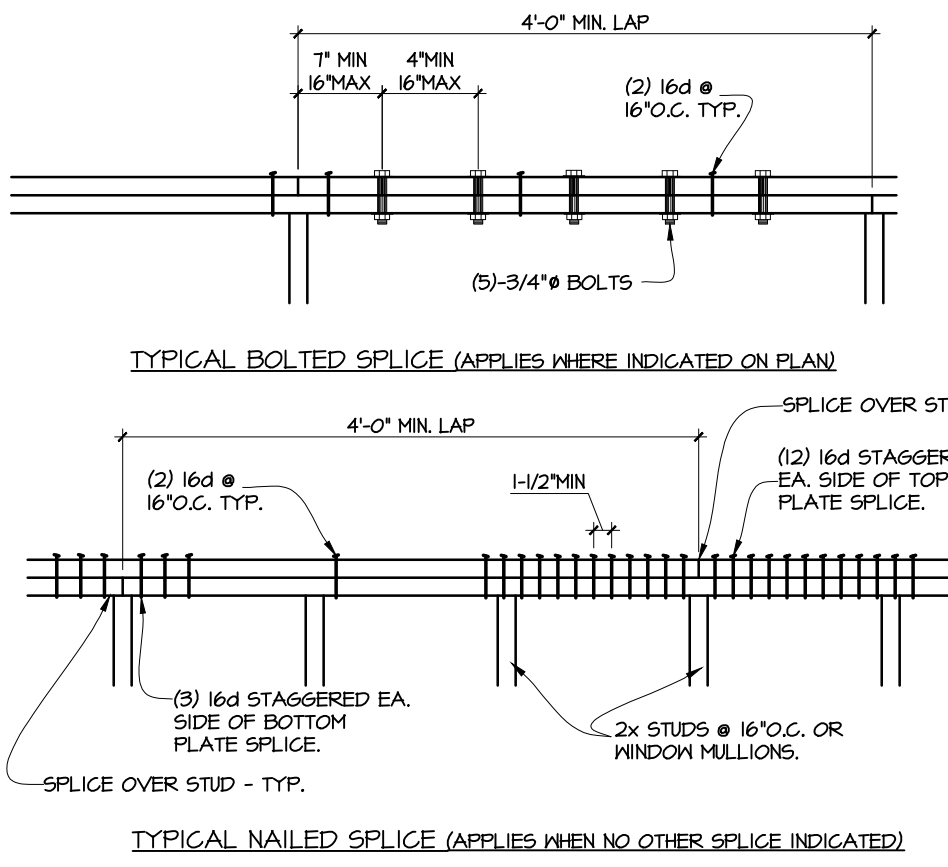
TABLE R802.3(1)-continued FASTENING SCHEDULE			
a.	Nails are smooth-common, box or deformed shanks except where otherwise stated. Nails used for framing and sheathing connections shall have minimum average bending yield strength as shown: 80 ksi for shank diameter of 0.132 inch (20d common nail), 90 ksi for shank diameter of 0.142 inch but not larger than 0.177 inch, and 100 ksi for shank diameter of 0.142 inch or less.		
b.	Staples are 16 gauge wire and have a minimum 1/2" width on diameter crown width.		
c.	Nails shall be spaced or not more than 6 inches on center at all supports where spans are 8 inches or greater.		
d.	Fastened by 8-foot or 4-foot by 4-foot panels shall be applied vertically.		
e.	Spacing of fasteners not included in this table shall be based on Table R802.3(2).		
f.	Where the ultimate design wind speed is 130 mph or less, nails for attaching wood structural panel roof sheathing to gable end wall framing shall be spaced 6 inches on center. Where the ultimate design wind speed is greater than 130 mph, nails for attaching panel roof sheathing to intermediate supports shall be spaced 6 inches on center for framing parallel to ridge, eave and gable end walls, and 6 inches on center for gable end wall framing.		
g.	Cypress sheathing shall conform to ASTM C1196 and shall be installed in accordance with GA 253. Fiberglass sheathing shall conform to ASTM C208.		
h.	Spacing of fasteners on roof sheathing panel edges applies to panel edges supported by framing members and required blocking and at floor perimeter only. Spacing of fasteners on roof sheathing panel edges applies to panel edges supported by framing members and required blocking. Blocking of roof or floor sheathing panel edges perpendicular to the framing members need not be provided except as required by other provisions of this code. Floor perimeter shall be supported by framing members or solid blocking.		
i.	Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule, provide two toe nails on one side of the rafter and toe nails from the ceiling joist to top plate in accordance with this schedule. The toe nail on the opposite side of the rafter shall not be required.		



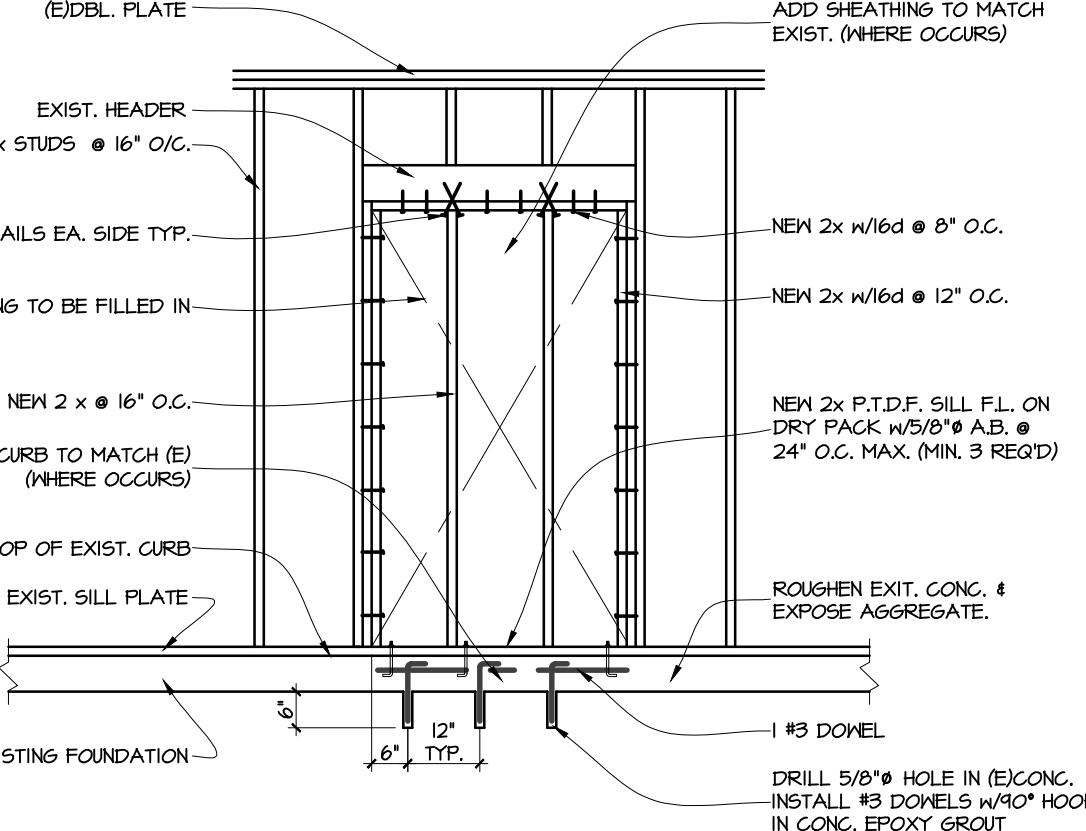
THE DETAILS ON THIS SHEET ARE "TYPICAL" DETAILS WHICH ARE TO BE USED BY THE CONTRACTOR WHERE THESE VARIOUS GENERAL CONDITIONS EXIST. THESE DETAILS ARE NOT NECESSARILY REFERENCED ANYWHERE ELSE IN THIS SET OF CONSTRUCTION DOCUMENTS. PRIOR TO STARTING WORK, THE CONTRACTOR IS TO CONFIRM WITH THE ENGINEER THAT THESE DETAILS ARE PROPERLY INTERPRETED AND APPLIED TO THE APPROPRIATE CONDITIONS.

Bolt Embedment Schedule for Concrete or Masonry	
BOLT DIAMETER	EMBEDMENT
1/2"	5"
5/8"	5"
3/4"	5"
7/8"	6"
1"	7"

NOTES:
1. EMBEDMENTS ABOVE ARE MINIMUM UNLESS OTHERWISE SHOWN ON DRAWINGS.
2. MIN. EMBEDMENT FOR BOLT TO BE 6" BELOW FINISH FLOOR LINE.
3. EMBEDMENT IS EXCLUSIVE OF DRYPACK.
4. THESE EMBEDMENTS DO NOT APPLY FOR ANCHOR BOLTS FOR HOLDOWNS.



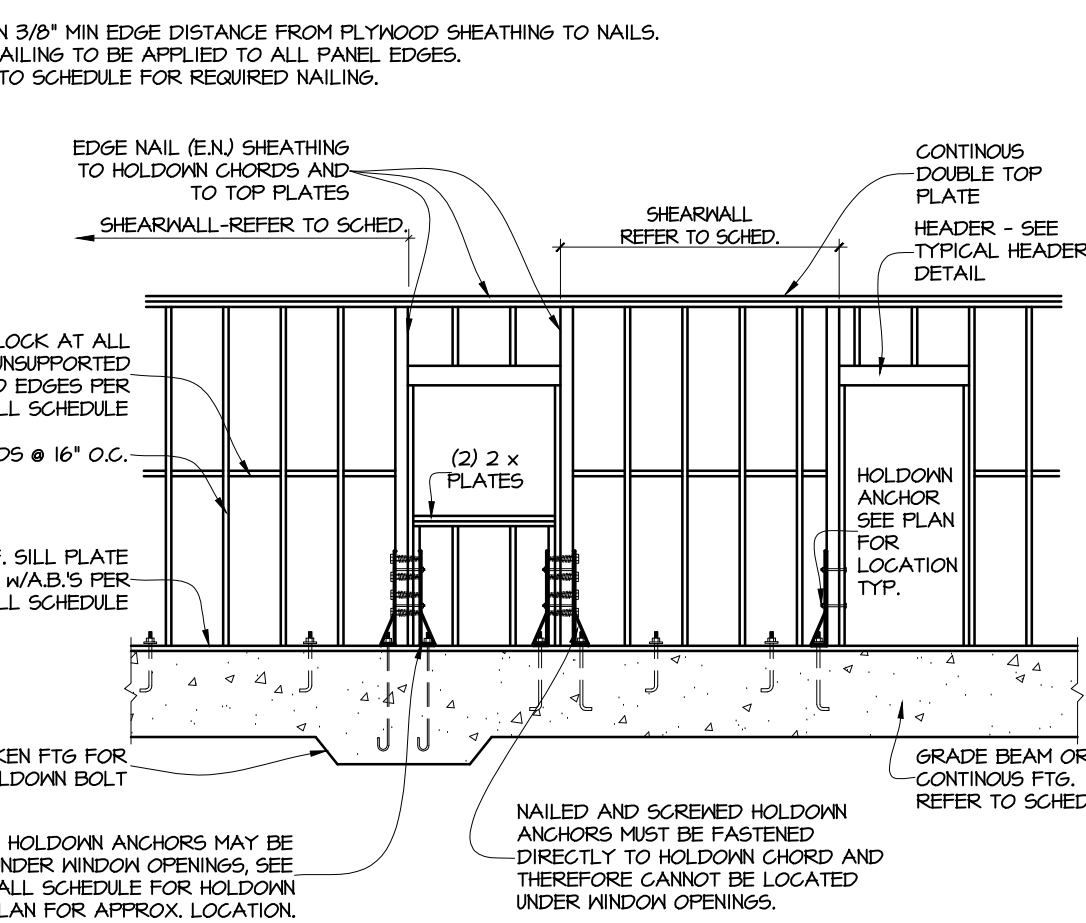
9 TYPICAL PLATE SPLICE



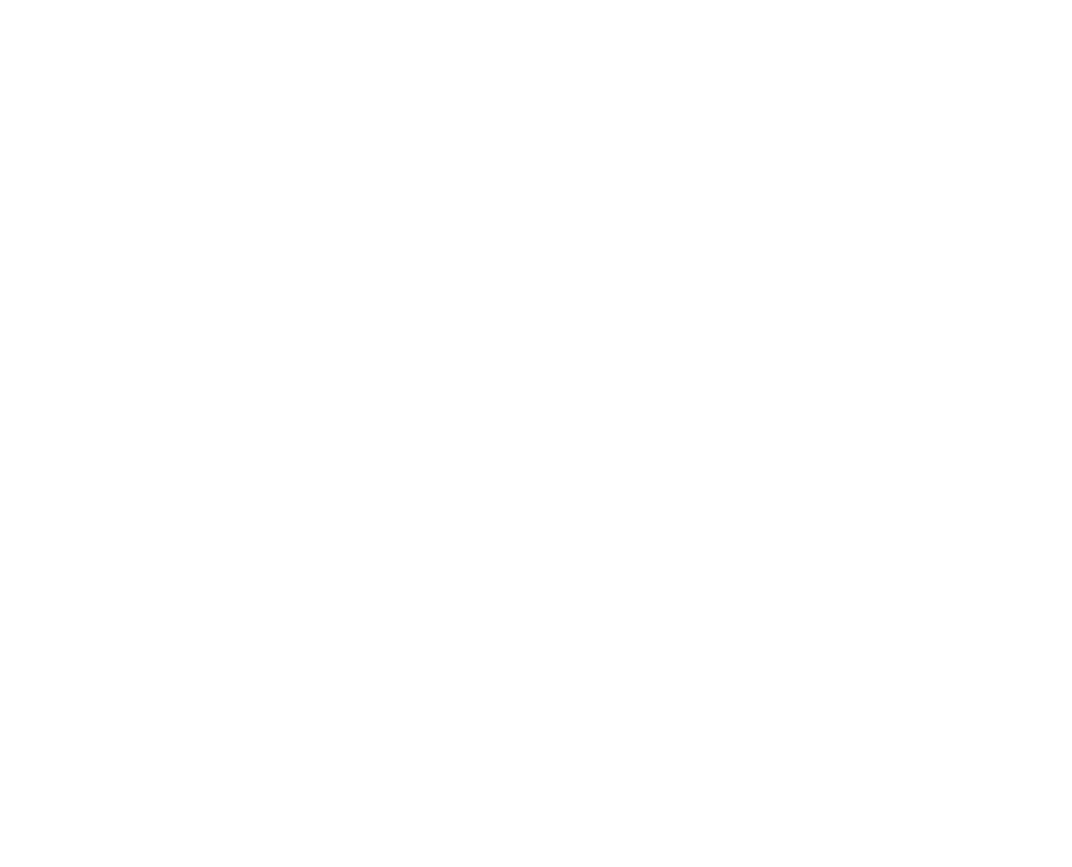
10 FILL EXISTING OPENING IN STUD WALL



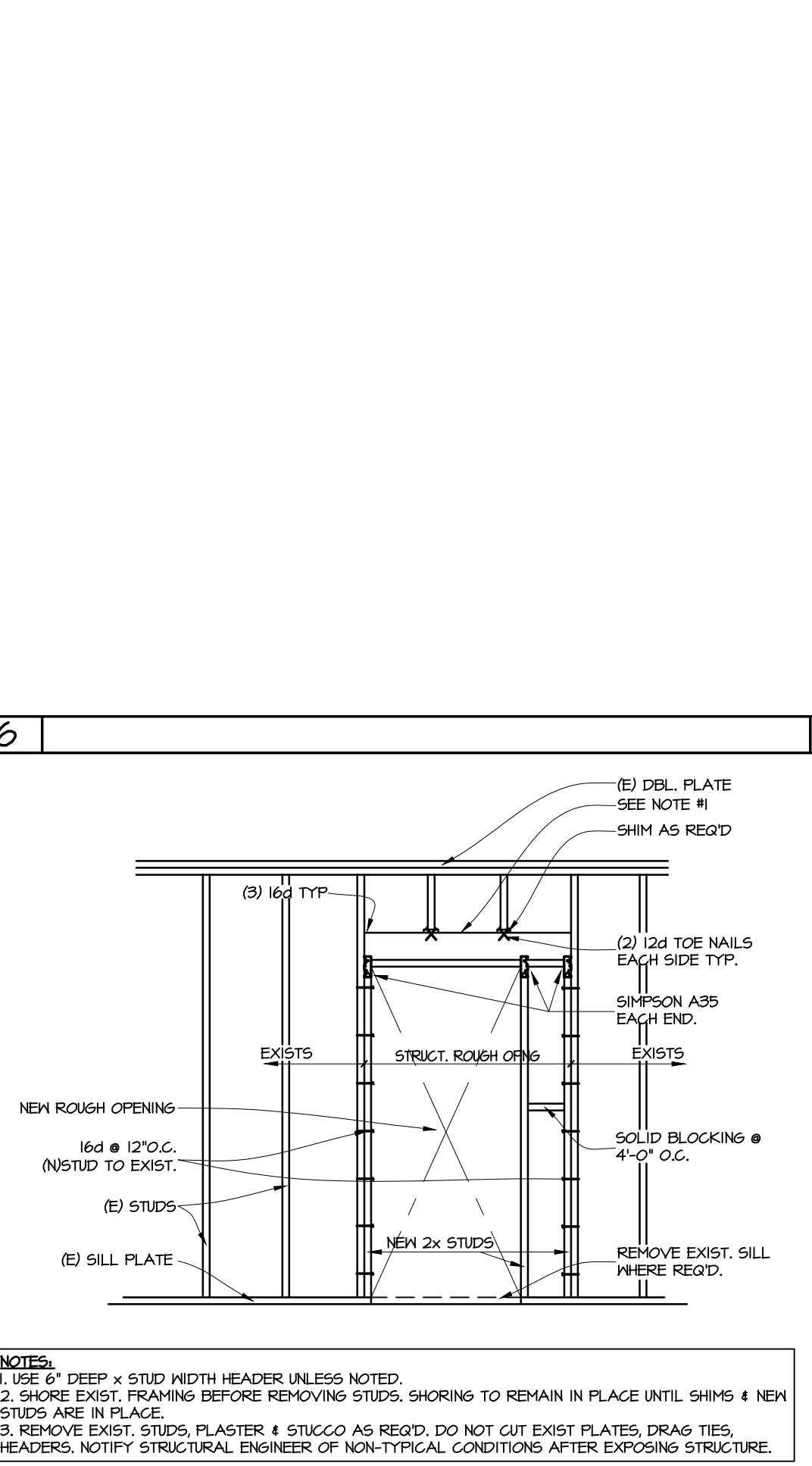
15 SS5TB ANCHORAGE



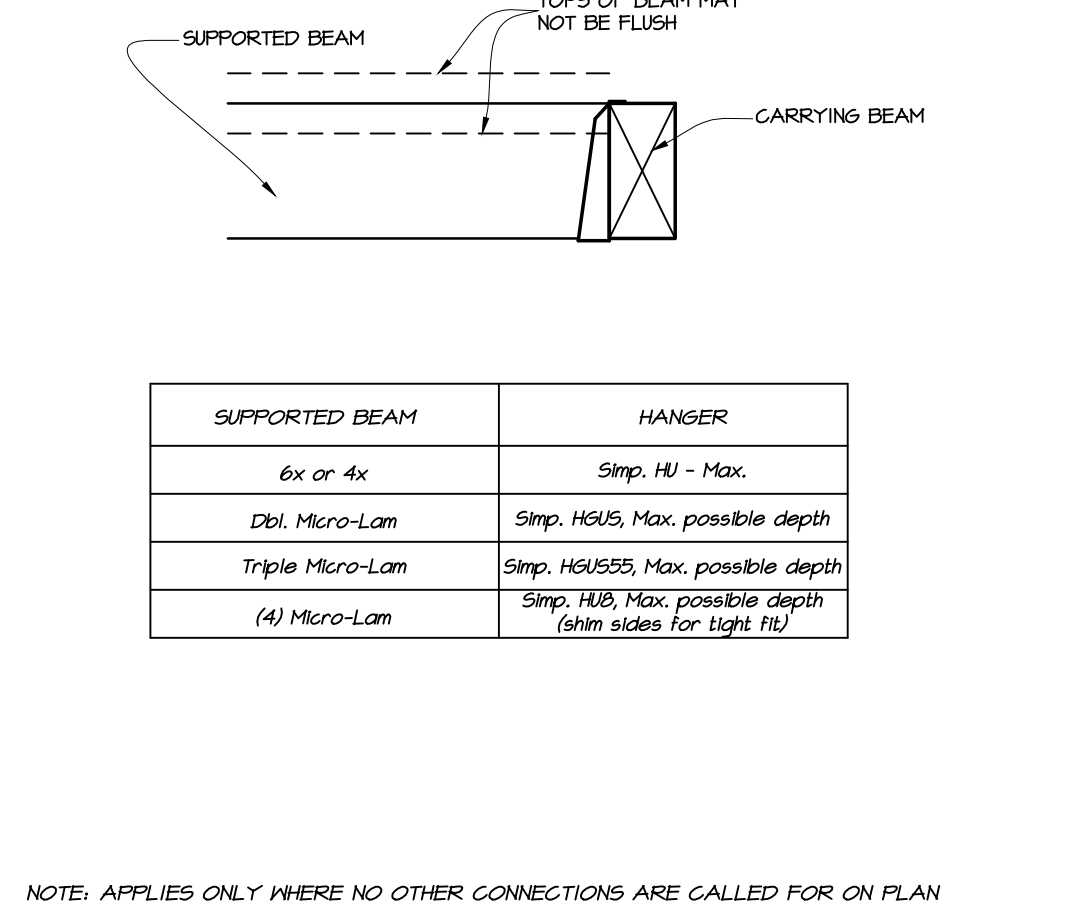
12 TYPICAL STUD & SHEAR WALL



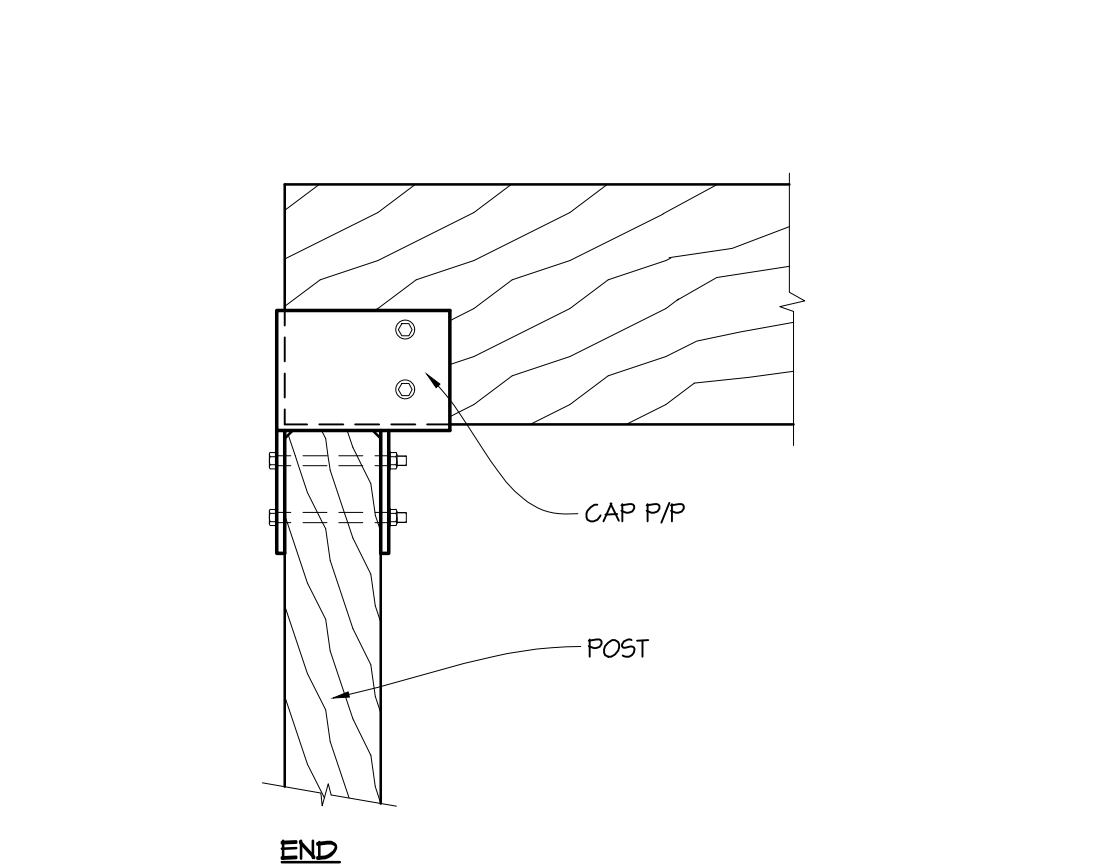
5 TYPICAL FLUSH FRAMED BEAM TO BEAM CONNECTION



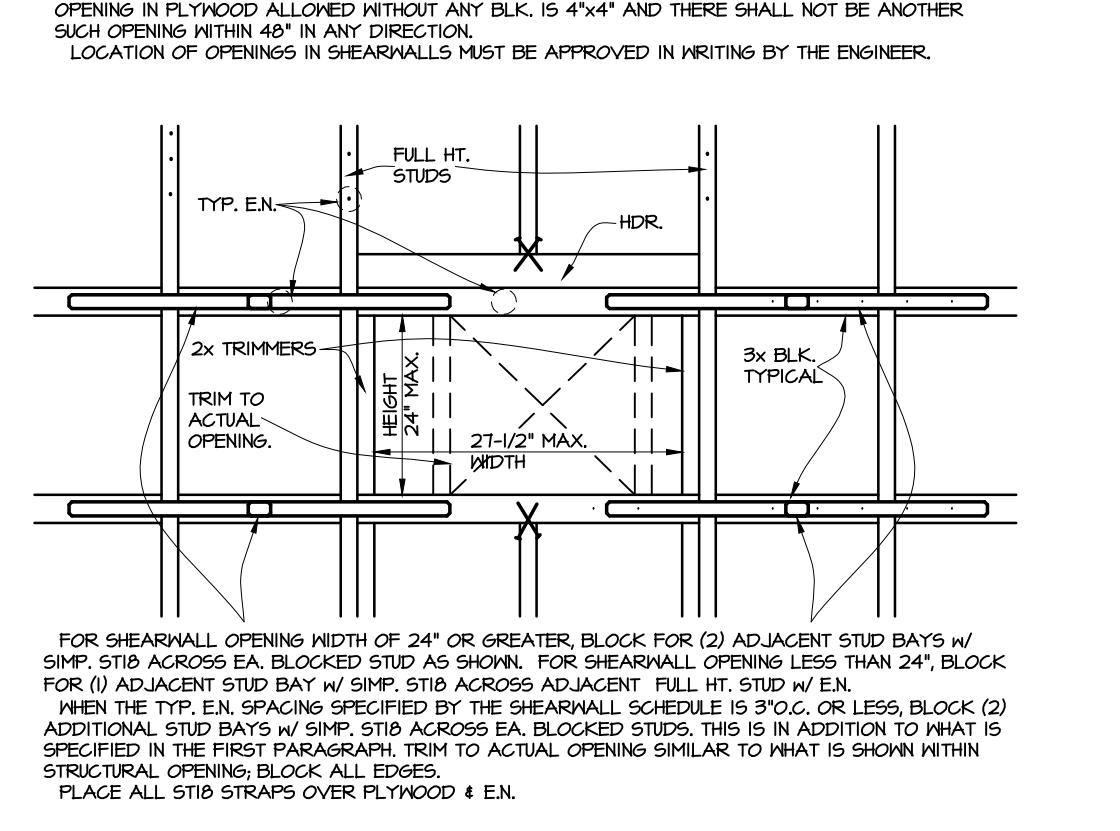
7 NEW OPENING IN EXISTING STUD WALL



8 TYPICAL STUD & SHEAR WALL



1 POST TO BEAM



2 TYPICAL OPENING IN SHEARWALL



7 NEW OPENING IN EXISTING STUD WALL



8 TYPICAL STUD & SHEAR WALL

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S.7

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SHEET 7 of 8

Garage Header Rough Opening Height

Steel Strong-Wall Single Wall Portal

Steel Strong-Wall Double Wall Portal

Base Plate Connection

Top of Wall Connection

Notes

SSW4

Foundation Plan View

Slab on Grade Foundation

Interior Foundation

Part Anchor Bolt

Anchorages - Typical Sections

Anchorages Schedule

Top Plate Connection

Shim Block on Std. & RF Walls

Cripple Wall on Std. & RF Walls

Single Story Strong-Wall

Stacked Strong-Wall

Strong-Wall Templates

Wall Specifications

Notes

SSWB Tension Anchorage Schedule 2500 PSI

Steel Strong-Wall Anchorage Solutions for 4000 PSI Concrete

Steel Strong-Wall Shear Anchorage

Steel Strong-Wall Anchor Bolt Shear Anchorage

SSWB Tension Anchorage Schedule 2500 PSI

SSW Anchor Bolts

SSW Anchor Bolt Extension

SSW Anchor Bolt Templates

Stamp

Mike Gones Civil Engineer

Strong-Wall Single Story Walls

Steel Strong-Wall Anchorage Details

Engineered Designs

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